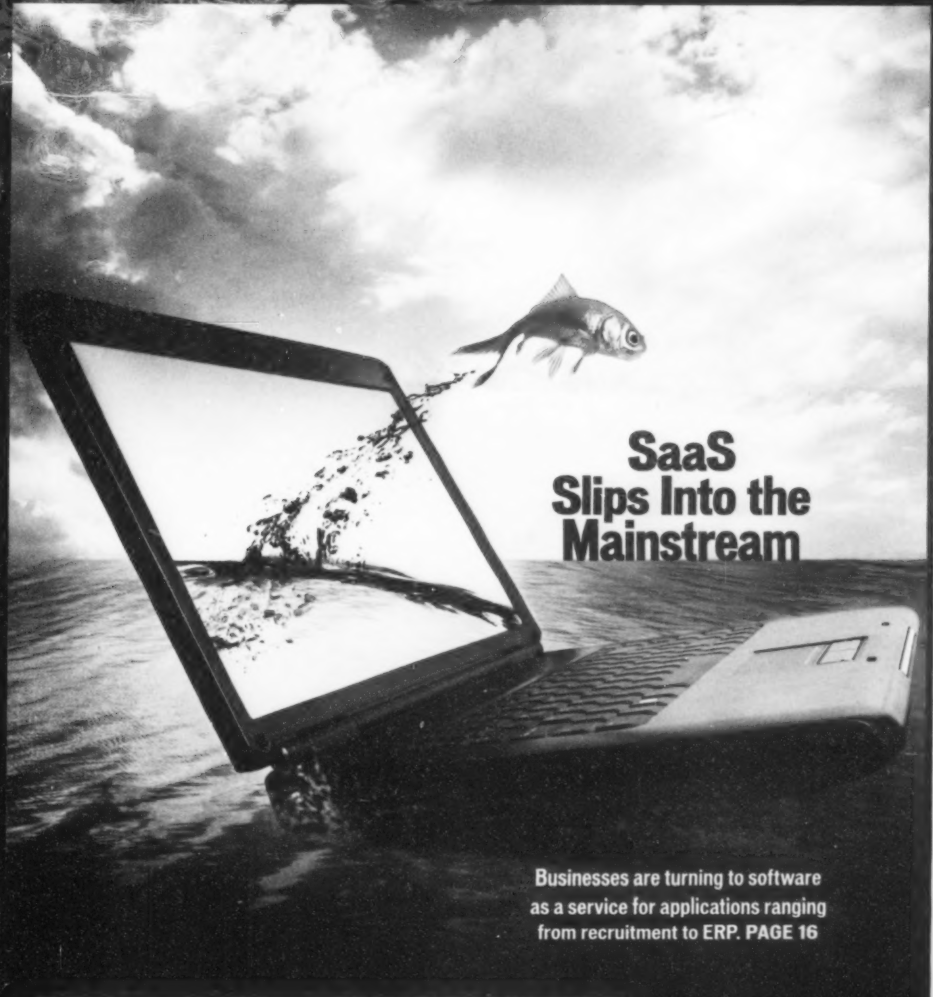
Get Tax Breaks for Going Green: Federal and state tax credits are available for eco-friendly IT projects. Are you taking advantage of them? PAGE 28

COMPUTERWORLD®

Peer Perspective. IT Leadership. Business Results.

FEBRUARY 22, 2010 | VOL. 44, NO. 4 $5/COPY



SaaS Slips Into the Mainstream

Businesses are turning to software as a service for applications ranging from recruitment to ERP. PAGE 16

Inside

News Analysis

Back-to-back blizzards couldn't shut down Washington, D.C.'s IT operations. PAGE 8

Microsoft moves to re-establish its credibility as a mobile software player. PAGE 10

THE GRILL: Researcher Tom Mitchell explains how machine learning helps us understand how the human brain works. PAGE 12

Opinion

Google, Microsoft and Apple: Which will thrive? PAGE 40

Careers

A mainframe user group focuses on recruiting young people for IT careers. PAGE 36

Don't Miss ...

An award-winning virtual campus takes distance learning to a whole new level. PAGE 30

#BXBBJFT ....CAR-RT LOT**B-050
#1193105/CB/5# 0927 002 11 041
WES TAPP/DIRECTOR TECH AND 1617-8
NATIONAL ARCHIVE PUBLISHING 80
PO BOX 998
ANN ARBOR MI 48106-0998

COMPUTERWORLD.COM

Power your planet.

We live on a planet where data is exploding at an annual compound rate of 57%, where nearly 6 terabytes of information are being exchanged over the Internet every second, and where billions of connected people are surpassed in number, only by trillions of connected objects and devices. Why then is the average server in the average business running at only 10% utilization? It's hard enough for businesses to meet the demands of a smarter planet today, much less the unforeseen demands of tomorrow.

The new POWER7 Systems™ from IBM are not simply servers—they're fully integrated systems with the ability to run hundreds of virtual servers, helping you drive up to 90% utilization. These next-generation systems integrate massive parallel processing, throughput computing and analytics capabilities to optimize for the complex workloads and dynamic computing models of an increasingly data-driven world. Learn how to power your planet at ibm.com/poweryourplanet

Smarter systems for a Smarter Planet.

Sources for claims can be found at www.ibm.com/power/p7claim. IBM, the IBM logo, ibm.com, POWER7 Systems, Smarter Planet and the planet icon are trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. A current list of IBM trademarks is available on the Web at www.ibm.com/legal/copytrade.shtml. © International Business Machines Corporation 2010.

Inside

COMPUTERWORLD ■ FEBRUARY 22, 2010

■ HEADS UP

5 The **EPA** will start giving the *thumbs-up* to **eco-friendly data centers** with a new **Energy Star** program set to launch in June. | Does the **iPad** belong in the **enterprise?** Analysts disagree.

6 An **IT services start-up** opens an **"inshoring"** operation in Michigan. | **CIOs** should channel their **inner geek** and think about ways to use **consumer-oriented gadgets.**

■ NEWS ANALYSIS

8 Massive Storms Don't Halt D.C. IT Ops. The District of Columbia's 600 IT workers kept city systems running smoothly during back-to-back blizzards this month.

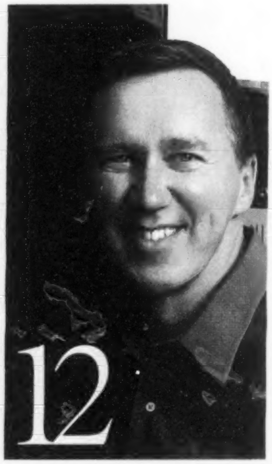
10 Rivals Aim to Slow Mobile Gains by Apple, Google. Of the three IT powerhouses that unveiled new mobile operating systems last week, Microsoft faces the hardest task: restoring its credibility in the mobile software business.

■ OPINIONS

26 Paul M. Ingevaldson ponders the necessity of user input in what IT produces.

34 Paul Glen is heartened to see IT launching new projects, but he warns that a conservative approach to project management could backfire.

40 Preston Gralla has some ideas about whether Google, Apple or Microsoft will thrive in the future.



■ DEPARTMENTS

12 The Grill: Carnegie Mellon researcher **Tom Mitchell** expects to see a revolution in psychology and neuroscience. What occupies his mind is learning what's on yours.

32 QuickStudy: **Drupal.** This open-source content management system offers a flexible way to build and organize Web sites.

33 Security Manager's Journal: **Delivering a Message to Asia.** A trip to China and India is an opportunity to rally the troops on security matters.

36 Career Watch: Share user group offshoot zNextGen seeks to recruit young people to enterprise IT.

38 Shark Tank: Too bad it took a broken neck to realize that the guy in charge of change management isn't so scary after all.

■ ALSO IN THIS ISSUE

Reader Feedback	4
Company Index	38

■ FEATURES

16 Beyond CRM: SaaS Slips Into the Mainstream

COVER STORY: Businesses are taking the plunge into budget-friendly software-as-a service offerings for everything from recruitment to central ERP.

22 Is SaaS a Good Fit for BI?

Hosted business intelligence systems can deliver analytic tools that give users most of what they need without the hassle of developing a costly internal BI infrastructure. But BI SaaS offerings are still evolving.

28 Get Tax Breaks For Going Green

Federal and state tax credits are available for eco-friendly IT projects. Are you taking advantage of them?

30 Meet Me In the Quad

COMPUTERWORLD HONORS: Delivering more than just online classes, the Virtual Campus lets students meet with instructors, access financial aid services, participate in clubs and more.

Our business is to secure your business.

ESET NOD32 Antivirus 4

Fast, Effective, Proactive, Antivirus and Antispyware

Our award-winning proactive threat-detection technology delivers the most effective protection from viruses, spyware, and other internet threats. ESET software blocks most threats the moment they are released, avoiding detection latency common to competing products. And with super-fast, super-easy operation, we keep your users productive, and your help-desk load down.

www.eset.com

© 2009 ESET, LLC. All rights reserved. Trademarks used herein are trademarks or registered trademarks of ESET, LLC. All other names and brands are registered trademarks of their respective companies.

eset

COMPUTERWORLD
P.O. Box 9171
492 Old Connecticut Path
Framingham, MA 01701
(508) 879-0700
Computerworld.com

EDITORIAL

Editor in Chief
Scot Finnie

Executive Editors
Mitch Betts, Julia King (events)

Managing Editors
Michele Lee DeFilippo (production), Sharon Machlis (online), Ken Mingis (news)

Director of Blogs
Joyce Carpenter

Art Director
April Montgomery

Technologies Editor
Johanna Ambrosio

Features Editors
Valerie Potter, Ellen Fanning (special reports), Barbara Krasnoff (reviews)

News Editors
Mike Bucken, Marian Prokop

Senior Editor
Mike Barton

National Correspondents
Julia King, Robert L. Mitchell

Reporters
Sharon Gaudin, Matt Hamblen, Gregg Keizer, Eric Lai, Lucas Mearian, Patrick Thibodeau, Jaikumar Vijayan

Assistant Managing Editor
Bob Rawson (production)

Editorial Project Manager
Mari Keefe

Associate Editor, Community
Ken Gagné

Office Manager
Linda Gorgone

Contributing Editors
Jamie Eckle, Preston Gralla, Tracy Mayor

CONTACTS

Phone numbers, e-mail addresses and reporters' beats are available online at *Computerworld.com* (see Contacts link at the bottom of the home page).

Letters to the Editor
Send to letters@computerworld.com. Include an address and phone number for immediate verification. Letters will be edited for brevity and clarity.

News tips newstips@computerworld.com

Subscriptions and back issues
(888) 559-7327, cw@omeda.com

Reprints/permissions
The YGS Group, (800) 501-9571, ext. 180, computerworld@theygsgroup.com

READER FEEDBACK

RESPONSES TO:

Apple's iPad: What's It Really For?

Jan. 30, 2010

Enough debate has already occurred on both sides of the fence about the current version of the iPad. The facts are that some people will buy the iPad when it is released, but many people will consider it either too expensive or not useful enough for the cost. In a couple of years, market forces will drive prices down and lead to increased functionality. Five years from now, with a price closer to $249 and with many of the usability restrictions lifted, the market for devices like the iPad should be in the tens of millions of units per year. What wouldn't make sense five or 10 years from now would be seeing students lugging 20 pounds' worth of textbooks around, when there is a much better alternative. Products like the iPad and the markets for them will evolve and grow over time. At some point, we will all be using some version of one of these devices.

Submitted by: *Scott*

As a savvy PC tech, I looked at the iPad and thought, "Cool toy if I had the money." I had the same questions you posed in the article. But my wife opened my eyes to another way of seeing it: It is *all* she needs in a computer. That was an epiphany. Something like 70% of the people who walk into my shop to buy a PC say, "I want a PC to surf the Web, check e-mail and play some games." This is all the PC they need. Easily half of the home PCs in America could be replaced with an iPad, and the user would be happier. We plan to sell my wife's iMac and buy her an iPad as soon as they come out. Sure, many of us need real computers at home, but many of us just need an iPad.

Barry Stockinger, *network technician, McPherson, Kan.*

JOIN IN. *You, too, can comment directly on our stories, at* **computerworld.com.**

COMPUTERWORLD.COM

Find these stories at computerworld.com/more

IT Execs Turn to Leased Data Centers

The downturn has some large enterprises re-evaluating how they pay for new data center space. The big winner: data center facility operators. computerworld.com/s/article/9150898

14 Computing Tools For the Disabled

These new and updated tools are making it easier for blind and physically disabled people to use computers. computerworld.com/s/article/9149058

Alice's Adventures In Cyberland

OPINION: **An app store for PCs makes sense because we can't expect every PC user to be a security expert.** computerworld.com/s/article/9157198

Data Center Bottlenecks Can Be Fixed – for a Price

Yes, solid-state storage is still expensive, but for speed-hungry applications, the performance boost can be too great to ignore. computerworld.com/s/article/9150779

Web Design and Promotion: Five Must-Read Guidebooks

Learn the latest techniques for designing Web sites – and making sure visitors can find them. computerworld.com/s/article/9154218

Will the iPad Be Another Windows 95?

OPINION: **IT departments need to pay attention to Apple's latest gadget.** computerworld.com/s/article/9154979

Fresh Insights
New Trends
Great Ideas

HeadsUp

© FOTOLIA / MORGANIMATION / BEBOY

GREEN IT

Data Centers to Get Energy Star Ratings

THE U.S. Environmental Protection Agency is wrapping up work on an Energy Star program for data centers that it hopes to launch in June.

The goals of the program are to give organizations a greater incentive to improve the energy efficiency of their data centers, and to give them a way to track the results of efficiency initiatives over time, said Alexandra Sullivan, an EPA program engineer who described the effort at a recent green IT conference.

Data centers that participate in the EPA program will use an online tool that ranks their efficiency on a scale of 1 to 100. Those that score 75 or higher can request an audit from the EPA, which awards qualified organizations the Energy Star certification.

The EPA has become increasingly active in data centers. It already has an Energy Star program for x86 servers, and it has started to develop programs for storage equipment and uninterruptible power supplies, or UPS systems.

The Energy Star certification will be based largely on the power usage effectiveness (PUE) metric, which is calculated by dividing the total power supplied to a data center by the amount that actually reaches IT equipment without being lost to cooling systems and inefficient power supplies.

The EPA will also take into account the energy output from the UPS systems. That means that while data centers with good PUE scores will tend to get higher rankings, that metric will not be the only factor, Sullivan said.

– James Niccolai, IDG News Service

GET BREAKING NEWS AT
COMPUTERWORLD.COM

MOBILE TECH

Analysts Disagree On Future of iPad In Big Business

If Apple Inc.'s new iPad is going to make its way into large businesses, IT managers will need to evaluate it themselves, because tech analysts are split on the idea.

Ted Schadler, an analyst at Forrester Research Inc., said in a blog post that the iPad will most likely enter the enterprise through the consumer door – just as the iPhone did. "Make no mistake, this is an attractive business tool," he wrote. "Laptops will be left at home."

But Gartner Inc.'s Phillip Redman and Analysys Mason's Steve Hilton both disagreed. In separate e-mail comments, the analysts said that the iPad doesn't fit into corporate America at all.

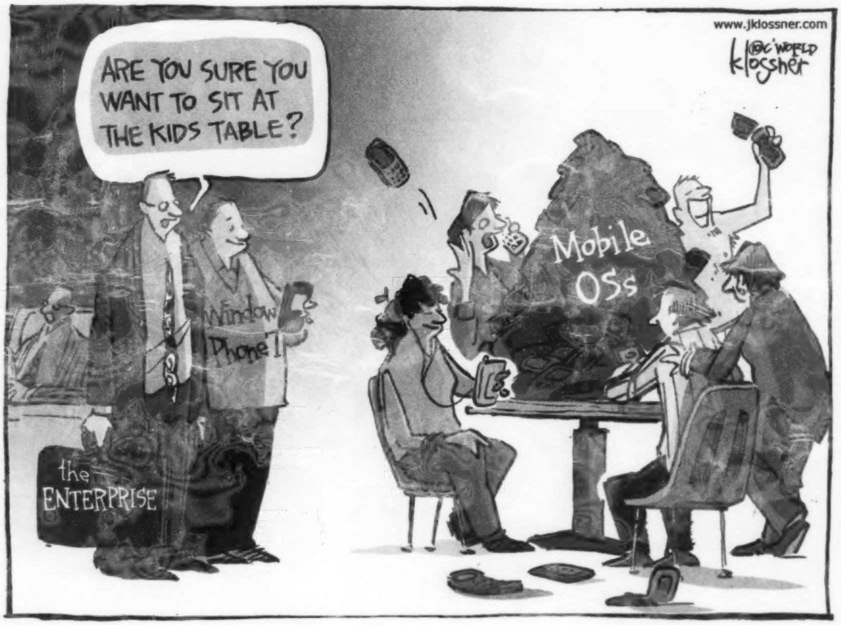
"Not enterprise material," Hilton wrote, noting that the iPad lacks common office productivity tools, uses a custom chip set and lasts only 10 hours on battery power when Wi-Fi isn't running.

But Schadler noted that 20% of companies already support iPhones, and the iPad is "just a big iPhone to them." He predicted that road warriors will like the iPad's support for messaging, collaboration, a full Web experience (with a 9.7-in. screen), regular-size documents and business media such as *The New York Times*. "This thing will take off among high-net-worth mobile pros," Schadler contended.

– MATT HAMBLEN

BETWEEN THE LINES

By John Klossner



OUTSOURCING

Start-up Offers 'Inshoring' in Michigan

A START-UP IT services firm — headed by veteran offshoring executives — has opened up an offshoring alternative in Michigan, a state with a 17.5% unemployment rate and a well-educated labor pool.

Fremont, Calif.-based Systems In Motion Inc. (SIM) has 35 IT workers in Ann Arbor and hopes to employ about 1,100 in Michigan within five years.

SIM's plans for the state were cited by Michigan Gov. Jennifer Granholm in her State of the State address earlier this month.

SIM's business approach, which it calls "inshoring," emphasizes streamlined processes and an intensive worker training program to keep costs 30% below those of in-house IT departments.

The executive team includes CEO Neeraj Gupta, previously an executive at Patni Computer System Ltd. in Mumbai, India; and Chief Marketing Officer Debashish Sinha, who held a similar post at HCL America Inc., a division of HCL Technologies in Noida, India.

Michael Parks, the chief delivery officer, is a former IT executive from Virgin Mobile USA and Wells Fargo & Co.

The team could easily have created an outsourcing company based offshore with offices in the U.S. While such a strategy has proved successful for many IT services firms, "I don't think the world needs another offshore company," Sinha said.

SIM, formed last summer, is still running on start-up funding. In September, the state government awarded it a $7.4 million credit to build in Michigan.

Salaries range from the $30,000 for recent college graduates to $80,000 for more experienced engineers, Sinha said. He wouldn't identify the five customers that have signed on with SIM so far.

Low real estate prices resulting from the downturn in Michigan's economy are helping SIM get started there. The cost of infrastructure, overall, is now lower in the U.S. than in Bangalore, Sinha noted.

– Patrick Thibodeau

Micro Burst

FORECAST

Analysts predict that

15 billion

tickets for transportation, sports events and movies will be delivered via mobile phone worldwide in 2014.

SOURCE: JUNIPER RESEARCH LTD, BASINGSTOKE, ENGLAND, FEBRUARY 2010

THINK TANK

Get In Touch With Your Inner Geek

CIOs should spend some time each day mulling over opportunities to use consumer-oriented technologies like Android, the iPad and music streaming, according to Sharyn Leaver, an analyst at Forrester Research Inc.

Likewise, think about how a humorous YouTube video could spruce up a training session or how social media could enhance marketing, Leaver said in a recent blog post. She also urged CIOs to remember that the gadgets people use in their personal lives inevitably spill over into the workplace.

"Their gadgets come to work with them on the commuter train, buzz up your network, and beg to be supported by your help desk. Head-down and avoidance tactics cement IT into its 'them' side – far away from 'us,' " she wrote.

Furthermore, CIOs should listen to "the gadget-curious folks" in the IT department, she said. They're up to date on "the state of the gadget/gizmo art and have the . . . skepticism about whether a gadget does what it is purported to do – or hoses your network."

– MITCH BETTS

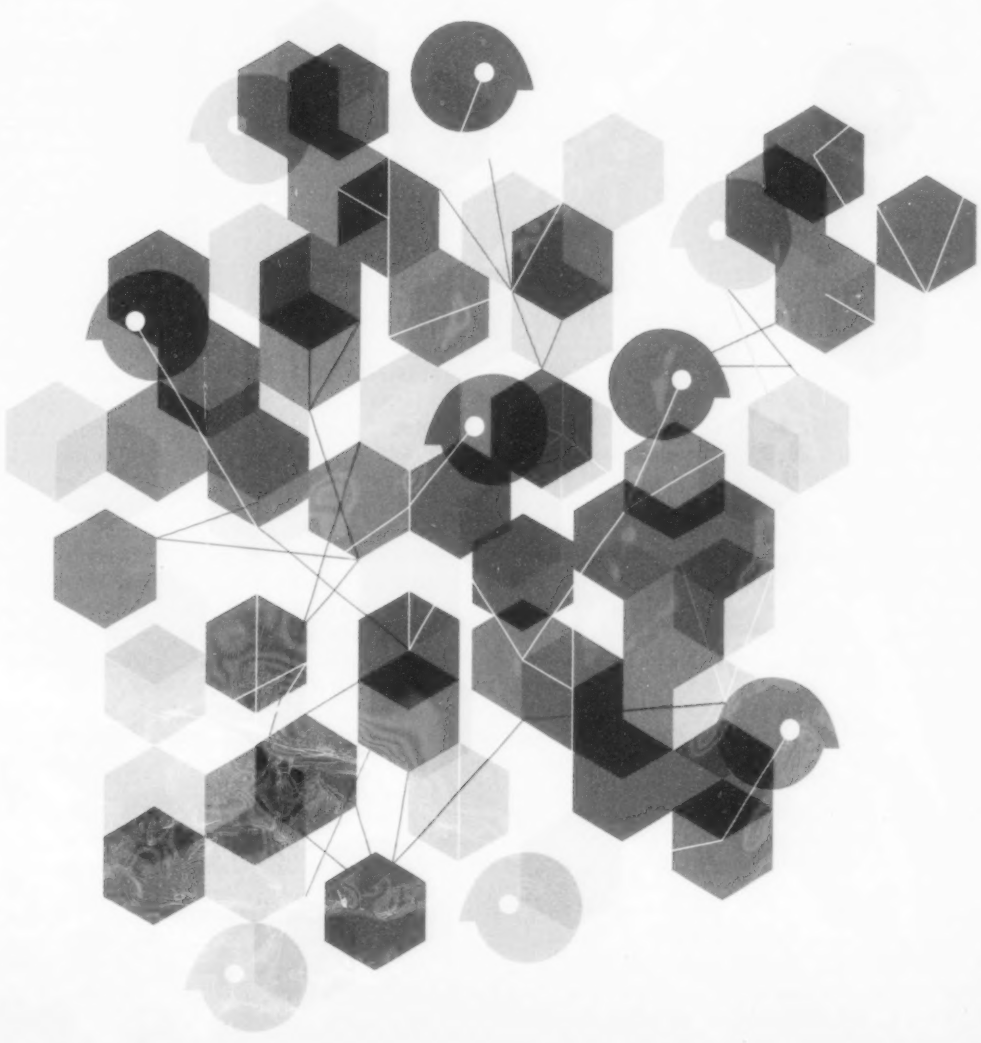
Smarter technology for a Smarter Planet:

Can the boundaries of a business be defined by its people instead of its walls?

On a smaller, flatter, smarter planet, we increasingly find ourselves working with people far outside the walls of the enterprise: partners, suppliers, customers and remote employees. IBM is incorporating new tools, like social software, wikis and presence awareness, throughout our collaboration portfolio—as well as new ways of accessing these tools through the cloud. Cloud-based solutions like LotusLive™ let your people work with whomever they want, regardless of what side of the firewall they're on. All backed by the legendary security you expect from IBM. Now you can extend your collaboration infrastructure without the cost and complexity of additional infrastructure. So you don't have to tear down your walls to reach beyond them.

A smarter business needs smarter software, systems and services.
Let's build a smarter planet. ibm.com/collaborate

IBM®



IBM, the IBM logo, ibm.com, Smarter Planet and the planet icon are trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the Web at www.ibm.com/legal/copytrade.shtml.

© FOTOLIA / MARIO BEAUREGARD

Massive Storms Don't Halt D.C. IT Ops

City tech workers use virtual operations and social media to maintain IT services. **By Patrick Thibodeau**

THE WashingtonPost.com headline "Whiteout paralyzes region" summed up life in the nation's capital earlier this month as back-to-back storms blanketed the region with more than two feet of snow.

The storms shut down most of the federal and local government apparatus for several days.

But Bryan Sivak, the District of Columbia's chief technology officer, stayed as busy as ever by working from home — as did most of the city's 600 IT employees.

About a dozen IT staffers stayed on-site, working 12-hour shifts and sleeping on cots to keep the district's two data centers running. They were on duty throughout the Feb. 5-6 weekend storm, and they were back on the job three days later for the second blizzard.

"We [were] just as open for business as we ever are," said Sivak, who used videoconferencing and other technologies to hold meetings that normally would have taken place in his office. "Pretty much everyone [in IT was] working."

The city has 36,000 employees and enough remote-work IT capacity to support 20,000 of them during emergency situations.

> **We [were] just as open for business as we ever are.**
>
> **BRYAN SIVAK,** CTO, DISTRICT OF COLUMBIA

Among the things that Sivak was able to monitor from home were Yammer microblogging feeds.

"It's provided another communications channel for people to quickly post updates, post messages about things they are looking for, and push it out to a group of people that they normally wouldn't communicate with," Sivak said.

The city's IT unit launched Yammer at the beginning of this year, but Sivak didn't push its adoption, opting to see whether it would grow on its own.

It has. As many as 300 people in 15 agencies now use the tool, developed by San Francisco-based Yammer Inc.

The district's government is also becoming a big user of Twitter. The Department of Transportation, for example, provided steady Twitter updates, using Twitpic to post photos of plows in action and fallen trees. The school department and other agencies also used Twitter to share information with residents.

Since the Sept. 11, 2001, terrorist attacks, a primary focus of federal and local government agencies has been to ensure continuity of operations during emergencies. That effort helped create a process that kept residents up to date on the city's response to the storm.

For example, the district's Snow Response Reporting System allows residents to type in an address to see animated graphics depicting the progress of snow-plowing efforts. The system, which collects data from GPS-equipped plows, shows streets that have been plowed and salted — and those that haven't. The map includes links to live traffic cameras.

The district IT unit's efforts to keep residents informed of agency activities received significant national attention last year when the city's former CTO, Vivek Kundra, was named federal CIO by President Barack Obama. During Kundra's term as CTO, the district developed a system that gives residents access to data feeds showing the activities of police and other departments.

Sivak has continued to push this model of open government, most recently with a beta of a system called Track DC, which shows daily updates of a variety of metrics about departments' operations, including spending. ■

Smarter technology for a Smarter Planet:

Finding meaning in the noise.

An unprecedented amount of information flows through companies every day. But to what effect? A recent study found that 52% of managers have no confidence in the information they rely on to do their job. Without the right approach to business intelligence, companies struggle to turn all that information into sound decisions. IBM business intelligence and performance management solutions give you the smarter tools you need to access the right information, making it available to the right people when and how they need it. Today IBM is helping over 20,000 companies spot trends, mitigate risk and make better decisions, faster. In fact, we helped a major retail supplier achieve this by cutting their average financial reporting time by almost 50%.

A smarter business needs smarter software, systems and services.
Let's build a smarter planet. ibm.com/intelligence

IBM®

IBM, the IBM logo, ibm.com, Smarter Planet and the planet icon are trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the Web at www.ibm.com/legal/copytrade.shtml. © International Business Machines Corporation 2009.

CHART © FOTOLIA / MAXIM_KAZMIN

Rivals Aim to Slow Mobile Gains by Apple, Google

Analysts say Microsoft faces the toughest challenge in the fast-changing market.

By Matt Hamblen

THREE TRADITIONAL powerhouses in computing and communications — Microsoft Corp., Intel Corp. and Nokia Corp. — last week kick-started major mobile technology revamps in the face of a quick-changing smartphone and device market increasingly dominated by Apple Inc. and Google Inc.

At the Mobile World Congress in Barcelona, Intel and Nokia jointly announced the Linux-based MeeGo mobile operating system, and Microsoft unveiled Windows Phone 7 Series (WP7).

The new Microsoft software comes out just a few months after CEO Steve Ballmer admitted that the company had "screwed up with Windows Mobile" and was shuffling its mobile operating system unit.

Last week, Ballmer told an audience in Barcelona that WP7 will bring "more consistency in the hardware platform and in the user experience. We had to step back and recast. [Now] we have a chance to make a major impact on the [smartphone] market."

WP7 will likely be running smartphones from a variety of carriers worldwide, including AT&T Inc. in the U.S., in time for the 2010 holiday shopping season, Ballmer added.

The MeeGo software combines features from Intel's Moblin and Nokia's Maemo mobile operating systems and will be available in the second half of this year.

Analysts said that each of the companies had to make a splash to blunt the growing fervor for the iPhone and Android mobile operating systems from Apple and Google, respectively. Microsoft has the added job of maintaining its credibility as a mobile software vendor after multiple missteps, some noted.

"Microsoft had to take aggressive action as Windows Mobile OS was dying a rapid death," noted Jack Gold, an analyst at J.Gold Associates LLC. "The changes might get it some notice, [but] the field is much more crowded, and notice will be harder to get.

Citing WP7's "hubs" feature, which groups functions into categories such as Games and Music+Video, analysts said Microsoft appears to be targeting consumers at the expense of its more traditional enterprise audience.

"[Such features] will not endear Microsoft to its existing base of corporate users who will have to redesign and redeploy their [mobile] apps to utilize this new platform," Gold wrote in a research note. "We don't think Microsoft can count on many enterprises making such a transition/upgrade. Most will stay with older Windows Mobile versions."

At some point, enterprise users of the older Microsoft software will probably find a competing operating system more attractive than WP7, Gold contended. In fact, he suggested that enterprise IT shops and users start looking at potential "end of life" strategies for existing Windows Mobile devices.

Gartner Inc. analyst Ken Dulaney raised similar concerns, noting that Microsoft has not clearly delineated the future for its Windows Mobile 6.5 software. "Will WM 6.5 eventually be subsumed into WP7, leaving [WM 6.5] users out on a limb for a few years?" Dulaney asked. ■

> **"We had to step back and recast. [Now] we have a chance to make a major impact on the [smartphone] market.** STEVE BALLMER, CEO, MICROSOFT CORP.

Download FREE White Paper #10:
"Preventing Data Corruption in the
Event of an Extended Power Outage"

www.apc.com/promo
888-289-APCC x6147
FAX: 401-788-2797

Key Code
r444w

Name: ______________________ Title: ______________________

Company: ______________________

Address: ______________________ Address 2: ______________________

City/Town: __________ State: __________ Zip Code: __________ Country: __________

Phone: ______________________ Fax: ______________________

e-mail: ______________________

☐ **Yes! Send me more information via e-mail and sign me up for the Uptime e-mail newsletter. Key Code: r444w**

What type of availability solution do you need? ☐ UPS: 0–16kVA (Single-phase) ☐ UPS: 10–80kVA (3-phase AC) ☐ UPS: 80+ kVA (3-phase AC) ☐ DC Power ☐ Networking Enclosures and Racks ☐ Air Conditioning ☐ Monitoring and Management ☐ Cables/Wires ☐ Line Conditioning ☐ Mobile Protection ☐ Surge Protection ☐ UPS Upgrade ☐ Don't Know

Purchase time frame? ☐ <1 Month ☐ 1–3 Months ☐ 3–12 Months ☐ >1 Year ☐ Don't Know

You are (check one) ☐ Home/Home Office ☐ Business (<1000 employees) ☐ Large Corp. (>1000 employees) ☐ Gov't, Education, Public Org. ☐ APC Sellers and Partners

APC
by Schneider Electric

©2010 Schneider Electric, All Rights Reserved. Schneider Electric, APC, and Uptime are owned by Schneider Electric, or its affiliated companies in the United States and other countries.
e-mail: esupport@apc.com • 132 Fairgrounds Road, West Kingston, RI 02892 USA 998-2282a

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT # 36 WEST KINGSTON RI

POSTAGE WILL BE PAID BY ADDRESSEE

APC
ATTENTION CRC: r444w
132 FAIRGROUNDS RD
PO BOX 278
WEST KINGSTON RI 02892-9920

Introducing the new, cutting-edge Smart-UPS

APC
Legendary
Reliability®
APC
APC
APC
APC

Only APC guarantees the reliability you need to protect your critical data and equipment. Look for APC on the outside to ensure Legendary Reliability on the inside.

Cutting-edge UPS technology from the inventors of Legendary Reliability.

What do you get when you combine 25 years of Legendary Reliability with the latest in UPS technology? Introducing the new APC Smart-UPS range of interactive, intuitive, and energy-saving UPSs, designed to protect critical server and network equipment from power threats and downtime.

New APC Smart-UPS: Smarter. Easier. Greener.

Thanks to millions of dollars in research, APC can proudly claim that only the new Smart-UPS features the unique battery life expectancy predictor, telling you the exact month and year for battery replacement. Precision temperature-compensated charging extends battery life; unique power meter function monitors energy usage; and a patent-pending "green" mode boosts online efficiencies up to 99 percent, saving on utility costs. Plus, the interactive LCD provides detailed status, configuration, and diagnostic information previously available only via software.

When dollars count and performance is critical, insist on the more intelligent, more intuitive APC Smart-UPS. Now more than ever, the name on the outside guarantees reliability on the inside: APC Smart-UPS.

Intuitive alpha-numeric display:
Get detailed UPS and power quality information at a glance – including status, about, and diagnostic log menus in your choice of up to five languages.

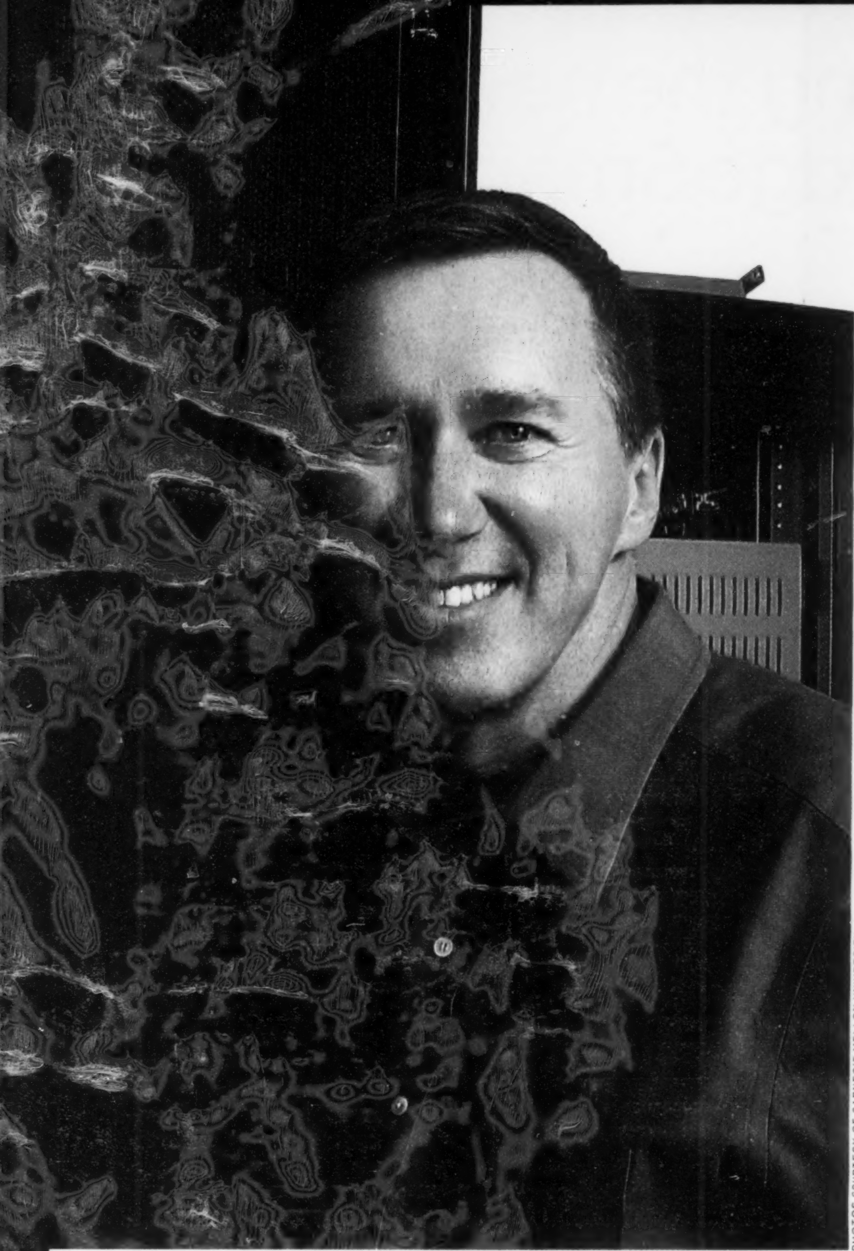
Configurable interface:
Set up and control key UPS parameters and functions using the intuitive navigation keys. On rack/tower convertible models, the display rotates 90 degrees for easy viewing.

Energy savings:
A patent-pending "green" mode achieves online efficiencies approaching 99 percent, reducing heat loss and utility costs.

Download a FREE copy of APC's White Paper #10, "Preventing Data Corruption in the Event of an Extended Power Outage."
Visit www.apc.com/promo Key Code r444w • Call 888-289-APCC x6147 • Fax 401-788-2797

APC®
by **Schneider** Electric

©2010 Schneider Electric, All Rights Reserved. Schneider Electric, APC, Legendary Reliability, and Smart-UPS are owned by Schneider Electric, or its affiliated companies in the United States and other countries. e-mail: esupport@apc.com • 132 Fairgrounds Road, West Kingston, RI 02892 USA • 998-2158



PHOTOS COURTESY OF CARNEGIE MELLON UNIVERSITY

■ THE GRILL

Tom Mitchell

This Carnegie Mellon researcher predicts a **revolution in psychology and neuroscience.** What's on his mind is learning what's on yours.

Dossier

Name: Tom Mitchell

Title: E. Fredkin Professor and Chair, Machine Learning Department, School of Computer Science

Organization: Carnegie Mellon University

Location: Pittsburgh

Favorite technology: "Those little remote-control helicopters you can fly in shopping malls."

Last book read: *The Kite Runner*, by Khaled Hosseini

Role models: "My parents, who taught me life owes us nothing but we can go after anything."

Favorite nonwork pastime: Windsurfing

Greatest ambition: "To understand the human brain."

Tom Mitchell is head of the Machine Learning Department at Carnegie Mellon University, where he oversees 45 doctoral students and 20 faculty members. He has spent more than 30 years performing research in the machine learning field. He recently discussed how machine-learning algorithms that analyze MRI data can know what you're thinking, and why enacting strict privacy regulations to bring order to the "Wild West" atmosphere that pervades the data collection business could shut down real-time data mining, for better or worse.

As a researcher, you're known for your work in machine learning. What's important about your work? The question that defines computer science is, how can we get machines to perform different algorithms, and what algorithms can we write? Machine learning is like that, but with a twist. Instead of hand-coding what the computer does, we train it. We show it examples. Machine learning has to do with how we build computer programs that improve with experience or find trends in historical data that make good predictions in the future. Face recognition, speech recognition and many other kinds of per-

Continued on page 14

INNOVATIVE COMPANIES LIKE RIM SUCCEED IN ONTARIO, CANADA.
YOU CAN CHECK THAT ON YOUR BLACKBERRY® smartphone.

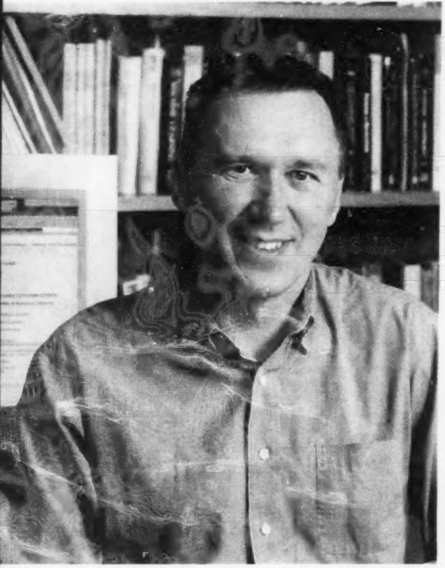
The indispensable communications tool you hold in your hand is the product of an Ontario-bred company. More than that, it's the product of a province that nurtures innovative minds – world-class universities flourish here, like the University of Toronto and the University of Waterloo – where Research In Motion got its start in 1984. If your business thrives on innovation, it will thrive in Ontario. **The world works here**.

ONTARIO
CANADA
investinontario.com/innovation

BlackBerry
31

Ontario Paid for by the Government of Ontario.

BlackBerry®, RIM®, Research In Motion®, SureType®, SurePress™ and related trademarks, names and logos are the property of Research In Motion Limited and are registered and/or used in the U.S. and countries around the world.



> **“People will react at some point to an overwhelming invasion of privacy and shut it down. We’re on a course that may lead to that.**

Continued from page 12

ceptual sensing problems end up being in the sweet spot for machine-learning algorithms.

What breakthroughs have you achieved? We applied machine learning to problems in neuroscience, looking at brain image data. We’re starting to understand how the brain uses neural activity to represent the meaning of different words. We’ve trained a program that can look at functional MRI images of someone’s brain activity and tell whether they’re thinking about a house or hammer, for example.

So you can identify, based on a previous analysis of other people’s brain image patterns, what object I might be thinking of? That is correct.

What are the practical applications of this ability to read people’s minds? We’re at the beginning of a revolution in psychology and neuroscience. Suddenly you can look inside the brain and turn what used to be fun philosophical questions into empirical science. We can look inside your brain when you see the color red, and we can look inside my brain when I see the color red, and we can ask, “Is it or is it not the same pattern of neural activity?”

So is my red the same as your red? I don’t have the answer for red. I have it for hammer. When you think “hammer,” it’s the same as when I think “hammer.”

Could people be networked to share this information, so that one person knows what the other is thinking? That’s not too far out. There are certain medical patients who are “locked in,” who don’t have the ability to speak and can’t move. It’s very tedious to try to communicate. A number of people are working on brain-computer interfaces, devices that can allow a person to have their thoughts decoded.

In a recent opinion piece in the journal *Science*, you argued that we need better privacy regulations due to the explosion of personal data. Why is that important to you? Think about the iPhone. You’ve got a camera, microphone, all of my e-mail goes through there, a GPS locator, an accelerometer that can tell if I’m sitting still or walking. There’s a tremendous amount of data about me that can be collected by those sensors.

If you add to that the stuff that’s available about you in the cyberworld, your electronic footprint as you go from site to site, there’s a tremendous increase in the amount of information being collected.

It’s pretty much the Wild West. If a company collects data about you, they get to decide what they do with it.

That was not worth agonizing about 30 years ago, when there wasn’t that much data. But [today], if you can get your hands on all of the data about me, it wouldn’t be hard to reconstruct my day.

What are the good things that come from mining all that real-time data? Already it’s starting to be used for things like traffic detection and reporting. If you go to Google Maps, some roads blink red because they’re congested. Google doesn’t exactly tell us how that data is collected, but there are some small companies that have deals with Google, providing them information of this type from cell phones.

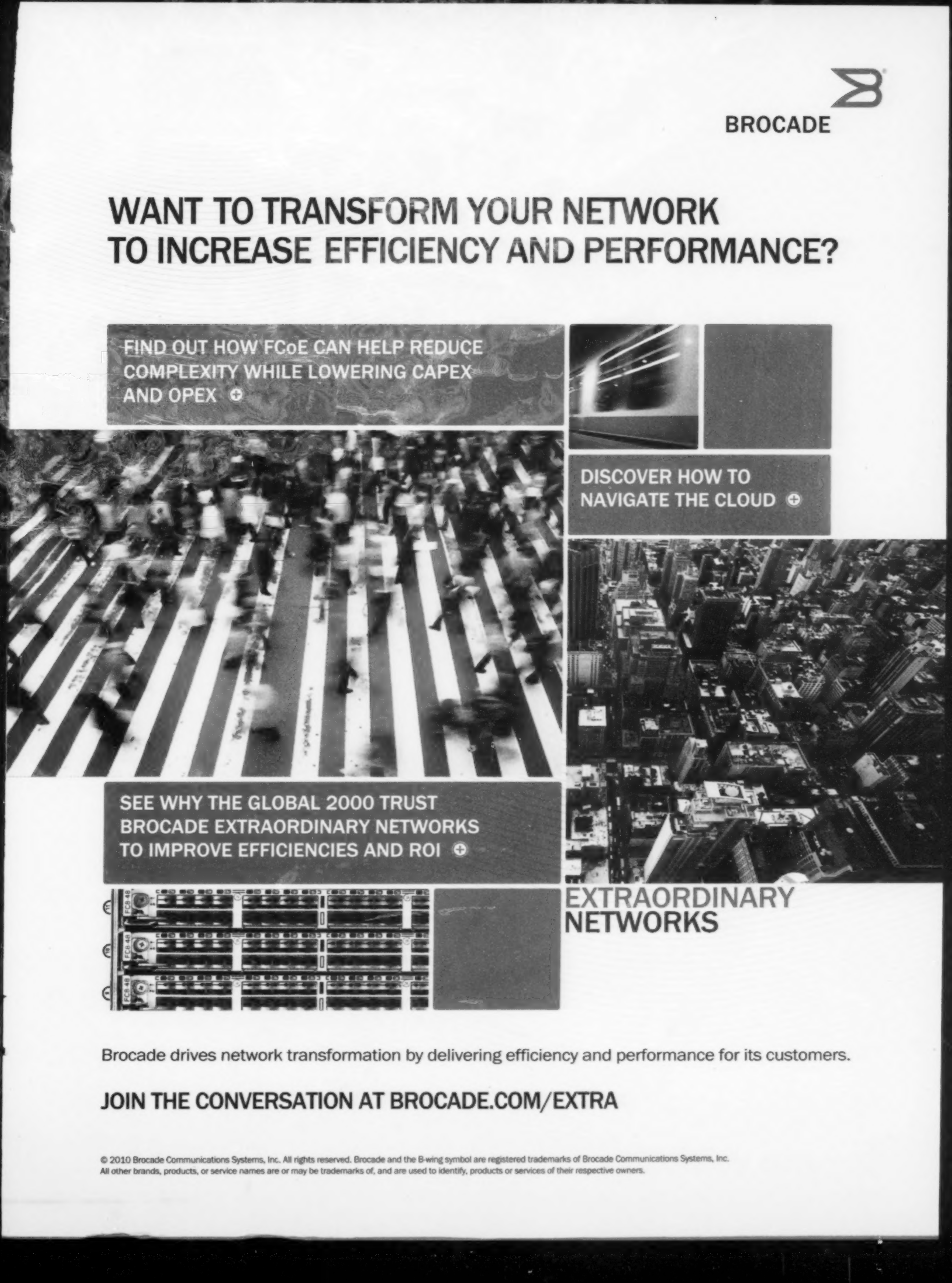
And the downside to sharing and aggregating all that personal data? Suppose I go into the emergency room tomorrow and I’m diagnosed with H1N1. My cell phone has been with me for the last week, so the phone company knows where I’ve been. It can tell where my cell phone location intersected with the cell phone location of other people.

There could be a service that would call and say, “You might be interested to know that Tom, whom you were with in Starbucks yesterday, was just diagnosed with an infectious disease.” That service could be offered with data that’s already being collected. But it’s not being offered, and the privacy issues are apparent in that case.

What are the consequences of inaction? People will react at some point to an overwhelming invasion of privacy and shut it down. Then there will be good things that won’t even get on the table to be discussed. We’re on a course that may lead to that.

Why should technologists care about data privacy issues? A lot of the debates I’ve heard are underinformed about the technology available for assisting in protecting privacy. So it’s really important that technologists insert themselves into this discussion — to make sure that when we’re weighing all of the trade-offs, we’re informed about what the options really are.

— Interview by **Robert L. Mitchell**



BROCADE

WANT TO TRANSFORM YOUR NETWORK TO INCREASE EFFICIENCY AND PERFORMANCE?

FIND OUT HOW FCoE CAN HELP REDUCE COMPLEXITY WHILE LOWERING CAPEX AND OPEX ⊕

DISCOVER HOW TO NAVIGATE THE CLOUD ⊕

SEE WHY THE GLOBAL 2000 TRUST BROCADE EXTRAORDINARY NETWORKS TO IMPROVE EFFICIENCIES AND ROI ⊕

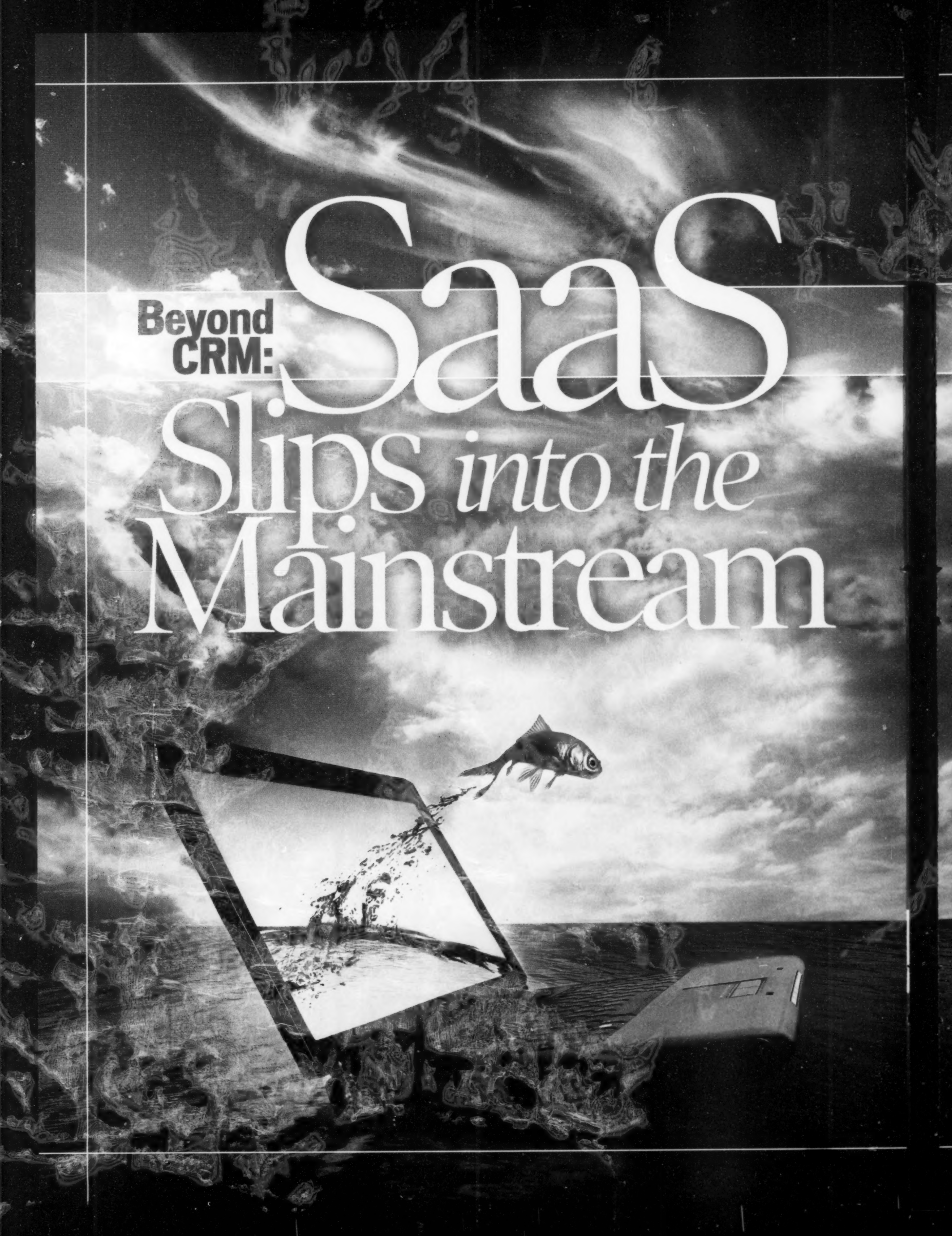
EXTRAORDINARY NETWORKS

Brocade drives network transformation by delivering efficiency and performance for its customers.

JOIN THE CONVERSATION AT BROCADE.COM/EXTRA

© 2010 Brocade Communications Systems, Inc. All rights reserved. Brocade and the B-wing symbol are registered trademarks of Brocade Communications Systems, Inc.
All other brands, products, or service names are or may be trademarks of, and are used to identify, products or services of their respective owners.

Beyond CRM: SaaS Slips *into the* Mainstream



© FOTOLIA / MIKAEL DAMKIER

Businesses are taking the plunge into budget-friendly software-as-a-service offerings for everything from recruitment to central ERP.

By Julia King

CUSTOMER relationship management applications are still the largest segment of the ballooning software-as-a-service market. But the landscape is changing.

Pressured to provide faster and better service capabilities while also keeping a tight rein on capital costs, businesses of all sizes are turning to SaaS for everything from recruitment, hiring, workforce scheduling and payroll applications to procurement management and even central ERP systems.

"We never used SaaS before, but we quickly learned the benefits are flexibility and the way you can develop things quickly," says Ginnie Stouffer, vice president of consulting at Wayne, Pa.-based IDC Partners, whose bread-and-butter business is providing remote network management and business continuity services.

For Stouffer, it happened like this: In 2007, IDC Partners secured a large help desk contract from a client who insisted that the consultancy use Salesforce.com Inc.'s hosted offering for help desk ticketing. IDC Partners did so and has never looked back, Stouffer says. Since then, it has moved virtually all of its applications to a hosted environment, including disaster recovery and VoIP communications. "There's nothing in our office now but a connection to the Internet and our users," Stouffer says.

One of the greatest benefits, she adds, especially in turbulent economic times, is that SaaS licensing is flexible.

For example, with Internet phone service from Alteva LLC, "we can upsize and downsize just by giving notification," she says. "With other software, if we bought 50 licenses then laid off 25 people, we'd still have 50 licenses."

SIZZLING SAAS

Tight IT budgets, the lingering effects of a brutal recession and a pervasive cautiousness in the executive suite over long-term capital investments are no doubt contributing to a growing interest in SaaS.

Early last year, market research firm IDC (not affiliated with IDC Partners) projected a 36% worldwide growth rate for SaaS in 2009. Then the recession hit hard, and IDC revised that figure upward to 40.5%.

Once the final tallies for 2009 are in, analyst firm Gartner Inc. expects SaaS revenue to total $7.5 billion, nearly 18% higher than it was in 2008. Gartner projects that by 2013, SaaS spending will hit $14 billion. And in an exclusive *Computerworld* survey of 127 IT professionals (see charts, page 18), 42% of the respondents reported using SaaS in their organizations, for everything from CRM (40%) to HR (38%), e-mail (36%) and payroll (32%).

Relatively low start-up and implementation costs are no doubt driving SaaS adoption well beyond CRM services, but there's more to it than that, users say. Just as important is that they typically get greater software functionality and more upgrades from SaaS vendors than they could ever manage with on-premises applications.

"Good-quality SaaS companies are constantly growing their environ-

Statewide SaaS?

DOES EACH and every state government really need its own computer system for processing driver's licenses or issuing hunting permits? Or could all 50 states use SaaS applications offered by a single state provider – or perhaps by a handful of commercial providers?

Could states attract more small and midsize businesses and increase jobs by offering low-cost SaaS applications to start-ups and other enterprises, including libraries and colleges?

Those are the kinds of questions that Michigan's CTO, Dan Lohrmann, raises when he discusses SaaS. Michigan is launching a series of pilot programs under which the state will offer branded, low-cost data storage services to various state agencies as well as libraries and schools.

Lohrmann expects early customers to include state agencies with nonsensitive data to store. "For example, the state needs to take dirt samples from the Upper Peninsula of Michigan and store that data for seven years. We could take the data for Years 4 through 7 and put it into the storage cloud, and it would be a lot cheaper" than storing it locally, he says.

But Lohrmann is also looking beyond infrastructure services such as storage. Ultimately, he would like the state to provide application services for processes like provisioning licenses and permits. He says he has no doubt that SaaS technology will get to a point where data security is no longer a stumbling block. Most states, he says, would also welcome the opportunity to cut infrastructure costs by using SaaS applications.

"In 2010, the most sensitive data is not a candidate for SaaS," he says. "But it is going to happen. You never say never."

What would have to change, however, is the long-held belief among many state officials that the way their state provides services to its citizens is unique.

"Every state says they're unique, just like every customer says they're unique," Lohrmann observes. "Every customer is special, but they're not really that unique.

"The biggest problem in 2010 is that almost every state is facing a difficult budget," he says. "If someone said you could do X, Y and Z for half the price with SaaS, but you'd need to change this [data] field or that field in an application, I think you'd all of a sudden see that those unique requirements would not be as important."

– *JULIA KING*

ments," says Doug Menefee, CIO at Schumacher Group, an emergency medicine management company based in Lafayette, La. "They do quarterly releases, so I get [new] features and functionality every three months."

Menefee says that "close to 70% of Schumacher's processes live in some kind of SaaS environment or cloud model." The company does use Salesforce.com for CRM, but it also builds its own custom SaaS applications for other processes on Salesforce.com's Force applications platform. Schumacher also uses human resources and benefits administration software services from Workday Inc. and a physician scheduling application service called Tangier from Peake Software Labs. And just recently, the company signed a deal with Google Inc. to roll out Google e-mail accounts to more than 2,700 physicians it works with. Even Schumacher's PeopleSoft applications, including all financial software, run as a managed set of services.

"I can't say there's an application that I wouldn't be open to using in a SaaS environment," says Menefee. "I don't have a strategy to move everything we have to the cloud, though." Rather, he says, the factors driving SaaS decisions are the ease of deploying and managing the systems.

"By not having to manage that infrastructure layer, our administrators, developers and business owners can focus on innovation and using the [software service] to bring value to the

Continued on page 20

SLOWLY SATURATING

Are you using SaaS for any of your organization's applications right now?

Yes	42%
No	51%
Unsure	7%

CRM A BIG PIECE OF THE PIE

Which applications are you using SaaS for now?

Customer relationship management/sales and marketing	40%
Human resources management/ performance management	38%
Collaboration/e-mail/messaging	36%
Payroll	32%
Business intelligence/analytics	19%
Backup/storage	13%
IT asset management	11%
Contract management	9%
Event/meeting management	9%
Project/portfolio management	9%
Travel expense management	9%
Contact center	8%
ERP	8%
Supply chain management	6%

DOABLE APPS

Which applications would you **consider** using SaaS for – now and in the future?

Collaboration/e-mail/messaging	40%
Travel expense management	32%
Backup/storage	31%
Customer relationship management/ sales and marketing	31%
Business intelligence/analytics	24%

DUBIOUS APPS

Which applications would you **not consider** using SaaS for – now and in the future?

Billing and general ledger	34%
Backup/storage	29%
ERP	28%
Payroll	27%
Contract management	24%

SERIOUS SKEPTICS

In the next six months, do you think SaaS will make significant inroads into the enterprise for applications beyond CRM?

Yes	30%
No	39%
Not sure	31%

SOURCE: EXCLUSIVE COMPUTERWORLD SURVEY OF 127 IT PROFESSIONALS, NOVEMBER/DECEMBER 2009

Microsoft

Tony
Branch Director
Sally
Salesperson
Mike
IT Director
Windows 7 Enterprise
Windows Server 2008 R2
Microsoft System Center
Productivity & Efficiency.
Any time. Any place.

Don't let anyone tell you that freedom comes at the cost of control. With Windows® 7 and Windows Server® 2008, users get more powerful search, smoother multitasking and the ability to work from virtually anywhere without a VPN. Add System Center and the Microsoft® Desktop Optimization Pack, and you get more automated PC management and increased control over your environment. Control for you and flexibility for your users. Optimized may not be a strong enough word.

To learn more about how desktop optimization can drive efficiencies go to **itseverybodysbusiness.com/optimize**

Snap this tag to get the latest news on desktop optimization or text OPTIMIZE to 21710

Get the free app for your phone at **http://gettag.mobi**

Because it's everybody's business

Continued from page 18

organization," Menefee says. "With on-premises software, we get into bottlenecks with procurement, infrastructure and scalability."

Using SaaS — as opposed to an on-premises application that can be customized in multiple ways for different departments — also works to increase standardization of business processes across an enterprise, says Chris Proudfoot, head of procurement, process and system strategy at London-based Aviva PLC, the U.K.'s largest insurance company, with $95 billion in sales.

Procurement is a prime example, says Proudfoot, who has experience with both on-premises applications and SaaS. Aviva now uses Ariba Inc.'s Spend Management SaaS offering. With on-site procurement systems, "there tends to be a demand from end users to want their own processes," Proudfoot says. "[With SaaS], you've basically got to adapt to the [SaaS] process. It's a way to standardize, although there still tends to be a certain amount of debate about the processes we use."

But like other users, Proudfoot says the primary benefit of SaaS is speed. "We were up and running within days of having the software available," he says. "Following implementation, there's nothing to do other than pay your subscription, log on and use it. But, of course, use does require adaptation of internal processes."

SAAS SKEPTICS

But not all applications are equally well suited to SaaS, users say. The best candidates are those applications that are fairly straightforward and require minimal support and virtually no customization, like e-mail or scheduling. Others see SaaS as a viable way to reduce system complexity and dramatically cut costs (see "Statewide SaaS?" on page 18).

Of course, there are still plenty of skeptics. As Angelo Valletta, CIO at Sun National Bank in Vineland, N.J., sees it, SaaS is a little like old wine in new bottles. "The whole cloud thing and SaaS thing is nothing new. It's been around since time-sharing," Valletta says. "It's just rebundled and repackaged with a sexier name."

But that doesn't mean it's not valuable. Far from it. In the financial services business in particular, SaaS is what enables small and midsize banks to offer some of the services, such as Internet banking, that big banks most likely developed in-house and got to market with first, Valletta notes.

"SaaS allows midtier [banks] on the same playing field as the large institutions," he says. Sun National, for example, uses SaaS for Internet banking services and wire services. Some banks even run their core banking applications as SaaS, Valletta says.

SaaS also enables companies to test new markets with minimal risk and upfront investment. For example, Intrax Cultural Exchange, a San Francisco-based au pair placement service that also offers internships and other cross-cultural programs, used Salesforce.com's Force platform to create what CIO Mark Schwartz calls a "quick launch" package of services. Those services can be used to get new products to market without delay and to get new overseas offices up and running quickly and inexpensively. The package includes a preintegrated set of Salesforce.com applications, a Web site template in a content management system, an accounting system and other components.

"The goal is to push to the extreme where we can try out new things with very little upfront investment," Schwartz says.

But new users shouldn't make the mistake of assuming that SaaS is cheaper than using on-premises software, says Phyllis Koch, director of IT for the Boynton Beach, Fla., city government, which is in the process of migrating its ERP system to a SaaS model. The other option was to replace an aging AS/400 computer system and continue running the ERP software in-house. The hardware alone would have cost at least $100,000, and the city didn't have that kind of money, Koch says.

Koch struck a deal with Sungard Data Systems Inc. to host the ERP system for the same amount of money that had been budgeted for AS/400 maintenance. Sungard, she says "will give us better disaster recovery, flat operational costs, and we avoid capital costs, so it's a win-win." But it's not necessarily cheaper. "Operating costs are the same," Koch says. "But we could stop worrying about a big capital cost." ■

© FOTOLIA / ALTAY KAYA

Transitioning Your IT Staff

If SaaS offers so many benefits, why isn't every enterprise using it for every application?

"It's the control issue," says Ginnie Stouffer, vice president of consulting at IDC Partners. "It's a lack of understanding on the customer's side of what they're actually using. They're much more comfortable if they can control the application. It's usually the IT staff that wants to own [applications]."

Schumacher Group CIO Doug Menefee is very familiar with this problem. "In the early days, we struggled with .Net and Java developers [accustomed to client/server software applications] not making the transition easily and not embracing Salesforce.com," he recalls.

His solution to that problem was to create a new Web services organization and then hire Web developers, who "naturally gravitate more toward clicks than coding."

"This group typically deploys more solutions in a shorter amount of time than what the on-premises software team delivers. But that's not to say one is stronger or better than the other," Menefee quickly adds. "It's because the on-premises software team has to deal with more infrastructure and licensing-related issues."

Today, the teams peacefully coexist in Schumacher's mixed SaaS and on-premises IT environment.

"Everything here is driven by business requirements," Menefee says. All new applications aren't automatically SaaS-based. Instead, he explains, "whenever we have a business need, we evaluate what our existing architecture is, and we go to both teams and ask them to come back with proposals to address the problem."

– JULIA KING

Personalized IT newsletters
from Tech Dispenser.

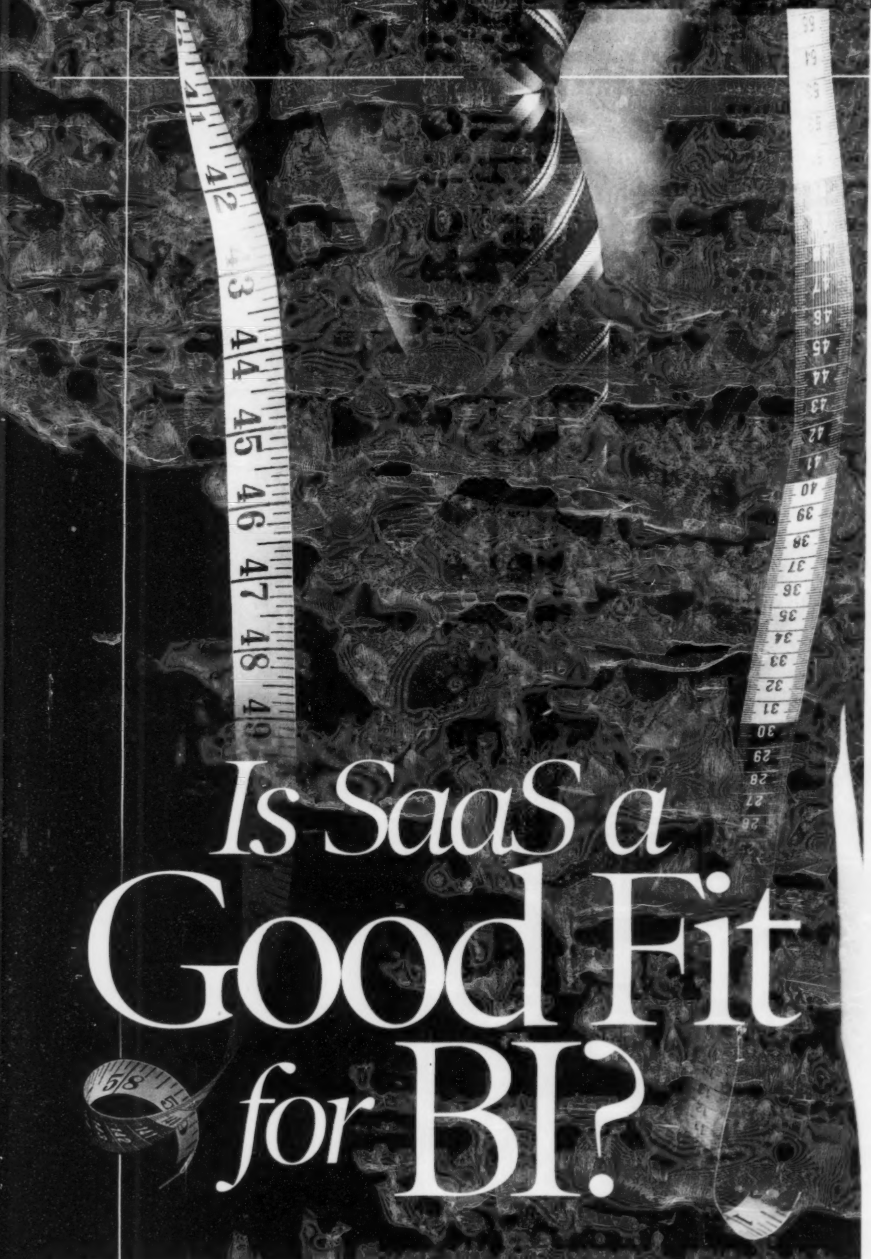
You pick the topics.
You pick the sources.
You pick the frequency.

Build your own newsletter featuring your favorite technology topics - cloud computing, application development, security - over 200 timely topics, from more than 700 trusted sources.

Get started today. It's free.
www.techdispenser.com

TECH DISPENSER

Disturbingly personal newsletters



Is SaaS a Good Fit for BI?

By Robert L. Mitchell

For businesses lacking in-house expertise, this nascent market offers fast, cost-effective analytics.

WHEN considering strategic business intelligence needs, would you put your faith in the cloud? The idea made sense for Distribution Market Advantage. For Creativity Inc., not so much.

The profiles of these two companies draw a clear line between where the nascent BI-as-a-service offerings fit — and don't fit — in business today. At one end of the spectrum, Schaumburg, Ill.-based DMA has no in-house BI expertise and needed to rapidly develop a Web-accessible BI dashboard for a narrowly defined purpose. On the other, Van Nuys, Calif.-based Creativity has developed its own in-house data warehouse and business analytics expertise. It mines that data to develop highly customized metrics that provide a competitive edge in developing and marketing new products for the consumer crafts market.

But even Creativity's vice president of IT, Jim Mulholland, who decided to pass on BI software as a service (SaaS), sees the game-changing potential of BI as a service: its ability to rapidly deliver a standardized suite of analytics tools that give users most of what they need without the time, expense and hassle of developing a BI infrastructure internally. BI in the cloud could be "the next killer SaaS application," he says.

However, the technologies — and the business models behind them — are still evolving. "It's still an embryonic market," says Jeffrey Kaplan, managing director for on-demand services consultancy ThinkStrategies Inc.

BI-as-a-service offerings typically import business data in a common format (such as an XML or comma-delimited file) put a structure around it, apply the appropriate data models and generate a Web-based user interface that allows for some analysis and the creation and distribution of standardized reports and dashboards. Some services can also query data in place, either behind the corporate firewall or from other SaaS applications, such as Salesforce.com's system. And some providers offer professional

Continued on page 24

© FOTOLIA / IMABASE

[TOUGH QUESTION #3]

HOW DOES ONE OF THE WORLD'S LARGEST AUDITING FIRMS PROVIDE 80,000 SECURE CONNECTIONS?

SONICWALL SECURES THE ENTERPRISE.

Today's successful companies deliver critical applications in a reliable and secure manner. SonicWALL security solutions provide granular control, proactive protection, and centralized management to meet these needs. With its multi-gigabit Reassembly-Free Deep Packet Inspection firewall, application control, and SSL VPN leveraging a GRID network of 4 million touch points, SonicWALL offers the flexibility to economically address key business challenges including mobility, cloud-based applications, and remote connectivity.

Learn more at sonicwall.com/80kstrong

NETWORK SECURITY
SECURE REMOTE ACCESS
WEB AND E-MAIL SECURITY
BACKUP AND RECOVERY
POLICY AND MANAGEMENT

SONICWALL
PROTECTION AT THE SPEED OF BUSINESS

© 2010 SonicWALL, Inc. SonicWALL and the SonicWALL logo are registered trademarks of SonicWALL, Inc.

Continued from page 22

services, such as data integration, ETL (extract, transform and load) and data transformation services that organize, clean and normalize data for organizations that can't do it themselves.

DMA needed those services. The supply chain logistics organization supports 50 regional food service distributors and has no in-house BI capabilities. "We are not a technology company. Our core competency is supply chain management," says Jim Szatkowski, vice president of technical and data services. With no in-house expertise, putting BI in the cloud made sense. But DMA's needs also fit the hosted model in two other ways: BI-as-a-service offerings tend to play well with other popular SaaS products, and they often have easy-to-use Web-based interfaces that facilitate collaboration with entities beyond the corporate firewall.

DMA wanted to roll up invoice transactions, inventory and other data that its distributors log in a SaaS order entry application, and provide a dashboard through which each could analyze operational metrics and create forecasts. It used a service from PivotLink Corp., and Szatkowski says he had it up and running in about two weeks — a far shorter time than what would typically be required for a similar, in-house project. PivotLink's service restricted access, allowing each distributor to see only its own organization's data.

EVOLVING MODELS

Even when resources are available in-house, BI as a service may be preferable when time to market is an issue. RBC Wealth Management already had a data warehouse and had BusinessObjects expertise in-house, but its IT organization had a three-year backlog of mergers-and-acquisitions work. So Shawn Spott, vice president and manager of marketing research and strategic analysis, hired SaaS provider Birst Inc. to deliver a BI dashboard to RBC's 2,300 brokers. Although the tool is still being rolled out, Spott says the company has already seen "an appreciable increase in revenue" from its users. The project worked in part because RBC had an extremely focused goal in mind, he says.

But most organizations are far from sold on the idea of hosted BI. BI as a service is still a nascent market — less than 10% of enterprises are using the services today, according to Gartner Inc. (A recent survey of *Computerworld* readers put that figure at about 8%.)

BI SaaS At a Glance

WHAT YOU'LL PAY

- **Most customers spend $20,000 to $50,000 annually,** says Brad Peters, CEO of Birst. PivotLink charges $3,000 per month for 100 million rows of data and 50 users. But users can get a small pilot project started for $100 or less per month.

CONSIDER BI SaaS IF . . .

- **You don't have in-house resources to do the job or BI isn't a core competency.**
- **You need something that can be built, adjusted and scaled quickly,** such as customizable sales reports.
- **You need it fast.**
- **You can get 80% of what you need with a few customizable templates.**
- **You're already using SaaS in operational areas such as CRM and HR** and need to add an analytics component.

THINK TWICE IF . . .

- **You're uncomfortable processing business intelligence data outside of the corporate firewall,** regardless of security assurances.
- **You have a complex project or one that requires a high degree of customization.**
- **You have a very large data set.**
- **The data on which you need to perform analytics changes every day.**
- **BI tools will be used primarily within the organization.**
- **It doesn't fit the broader business model or culture.** Balancing departmental and enterprise needs is key. A myopic view of BI needs can lead to application-specific silos of BI data that might be difficult to integrate in the future. Services might not have an API or support standards that would allow you to easily bring data back in-house.

HOW TO GET STARTED

- **Consider a small pilot project.** Service providers offer low-cost or even free trials where you can take advantage of a limited set of capabilities and reports for a small number of users.

Template-based functions and a shared, multitenant architecture on the back end are what make BI SaaS economical and easy to deploy. But such services typically can't handle as much complexity or customization as in-house projects can. Nonetheless, business decision-makers will trade complexity for simplification if it means faster time to market and greater utilization of their applications, suggests Kaplan.

The top concerns for business users are security, availability and the potential for bandwidth bottlenecks when transporting data. While vendors have made progress in these areas, particularly with security, Kaplan says, none of the concerns has been fully resolved.

At a minimum, the SaaS provider should be compliant with Statement on Auditing Standards (SAS) No. 70, which, among other things, establishes processes and procedures for proper security when using third-party service organizations, Kaplan says.

Users are also concerned about whether BI services will meet promised performance and availability levels, since they run in multitenant environments. Most vendors say they will provide service-level assurances, but the key is to have a detailed, measurable service-level agreement. "If your SLA is not well defined, you're probably heading into trouble," says Bill Hostmann, an analyst at Gartner.

At Allstate Insurance Co., Anthony Abbattista, vice president of technology solutions, oversaw the build-out of a sophisticated data warehouse and self-service BI infrastructure. Hosted solutions are "pretty cool," he says, referring to them as "good-enough BI." But he cautions that the key to good BI lies in how you pull the data together, linking schemas, tools and access strategies. "Just because you load the data into someone's BI environment doesn't mean you get value from it," he says.

At DMA, Szatkowski has no regrets. "We're getting tremendous results," he says. "It's a workhorse for us." ■

The servers that pay for themselves in 3 months.

Intel Xeon inside
Powerful. Intelligent.

ALTERNATIVE THINKING ABOUT SERVERS:

Next generation HP ProLiant servers.
11:1 consolidation and rapid ROI.

- Achieve 95% reduction in energy and cooling costs
- Realize savings of up to 90% in software license fees
- Reduce the number of servers to manage by 90%

Technology for better business outcomes.

HP ProLiant DL380 G6 server
- Up to two Intel® Xeon® Processor 5500 Series
- 144 GB maximum memory footprint
- Now supports up to 16 small form factor high-performance SAS hard drives or up to 6 large form factor SATA hard drives
- HP Insight Control cuts management costs by up to $48K per 100 users over 3 years* with integrated management suite

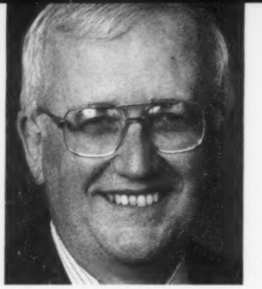
$2,099 (Save $725)
Lease for just $55/mo.**
SmartBuy (PN:470065-153)

See how HP innovation is delivering radical ROI for companies like yours at hp.com/servers/roi22 or call 1-866-545-0297.

*White Paper sponsored by HP, Gaining Business Value and ROI with HP Insight Control, #218069, May 2009. **Prices shown are HP Direct prices; reseller and retail prices may vary. Prices shown are subject to change and do not include applicable state and local taxes or shipping to recipient's address. Offers cannot be combined with any other offer or discount and are good while supplies last. All featured offers available in U.S. only. Savings based on HP published list price of configure-to-order equivalent (DL Server: $2,824–$725 instant savings = SmartBuy price of $2,099.) Financing available through Hewlett-Packard Financial Services Company and its subsidiaries (HPFSC) to qualified commercial customers in the U.S. and is subject to credit approval and execution of standard HPFSC documentation. Prices shown are based on a lease 48 months in term with a fair market value purchase option at the end of the term and are valid through April 30, 2010. Other rates apply for other terms and transaction sizes. Financing is available on transactions greater than $349. Other charges and restrictions may apply. HPFSC reserves the right to change or cancel this program at any time without notice. Financing available through Hewlett-Packard Financial Services Company and its subsidiaries (HPFSC) to qualified commercial customers in the US and Canada and is subject to credit approval and execution of standard HPFSC documentation. Offer valid through April 30, 2010 on transactions in the United States between $1,500 and $150,000 USD and in Canada between $5,000 CAD and $150,000 CAD. Zero percent financing assumes transaction is documented as a lease with a $1 end-of-term purchase option (or local country equivalent), assuming lessee is not required to pay any nominal end-of-term purchase price at the end of the lease term and disregarding any changes payable by lessee other than rent payments such as maintenance, taxes, fees and shipping. This offer cannot be combined with any other rebate, discount or promotion without prior approval by HP and HPFSC. Rates are based on customer's credit rating, financing terms, offering types, equipment type and options. Not all HP products are eligible for the 0% lease rate. Not all customers may qualify for these rates. Other restrictions may apply. HPFSC reserves the right to change or cancel this program at any time without notice. Intel, the Intel logo, Xeon and Xeon Inside are trademarks of Intel Corporation in the U.S. and other countries.
©2010 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice.

OPINION

Paul M. Ingevaldson



X Marks the Spot

LAST YEAR, I had some minor surgery. OK, if you must know, it was a hernia repair. The last thing I did before getting on the gurney to go into the OR was to take a hospital-issued marker and make a big red X on my right thigh indicating that it was a *right* hernia repair.

After the surgery, as I lay in the recovery room, I couldn't help but reflect on that red X. Here I was in a modern surgical environment, surrounded by the latest in medical technology, and the surgeon had relied on marking-pen "technology" to ensure that the correct job was done. Indeed, he had relied on the user to tell him, for sure, where to operate.

In many ways, this process very closely parallels the ideal situation in the IT-user relationship. Despite all of the latest whiz-bang technology in computer departments, it's still the responsibility of the user to tell the technologists where the problem is and what the solution should look like. No one wants to undergo the pain and expense of surgery or a system project if it has no hope of solving the real problem.

This crucial communication between users and IT must begin in the initial meetings prior to development, just as the doctor and patient must talk before any surgery can be ordered. That is when the user/patient discusses with the IT staffer/doctor the issues at hand, and the IT staffer/doctor outlines the options available to resolve the matter. Just as the patient is asked to describe the symptoms of his illness, the user should be asked to identify the symptoms of the poor process that the new system is meant to address.

Users have to be involved in project development as much as patients are in their own treatment.

The analogy isn't perfect, of course. The modern CIO also has a responsibility to determine the technology opportunities that could help the enterprise achieve success. Still, at the end of the day, it's the user department that must concur with the assessment and that must fully support the potential solution. It is the user who places the X on the right spot.

Just as with an operation, the user doesn't have much involvement during the actual development process. But once the operation or the system development is over, both the user and the patient have important roles to play. The user must verify that the system developed has resolved the problem, and the patient must tell the doctor whether the problem has been alleviated and the treatment successful. Finally, just as a patient goes on with his life while monitoring his own body for potential problems, IT users own the completed project and are responsible for communicating any problems or shortcomings to IT.

All too often, though, IT goes out on a limb and develops applications that are not endorsed by user management. Sometimes that happens because of IT arrogance, and sometimes it's a matter of user apathy. Either way, the result can be disastrous for the system, the user or the CIO.

So the next time your user department objects to getting involved in the IT development process, remember the story of the red X. Assure the users that you will do things right, but only if they help you determine that you're doing the right things.

They must ensure that the red X marks the right spot. ■

Paul M. Ingevaldson *retired as CIO of Ace Hardware in 2004 after 40 years in the IT business. You can contact him at ingepi@aol.com or visit his Web site, PaulIngevaldson.com.*

Advise. Lead. Influence.

IT Vendor
CIO

Mid-Market CIOs vs. Technology Providers

Advise your team on how to forge more effective CIO and vendor partnerships

Lead your clients or vendors in building a true partnership

Influence your constituency by providing right sized, cost-effective IT solutions

Get to your destination on time and within budget - access our complimentary Mid-Market CIO / IT Vendor Relations Field Guide Excerpt or purchase the full Field Guide, a unique resource, developed by CIOs for CIOs and the vendor community that supports them.

Know Your Next Move
council.cio.com/fieldguide

CIO

CIO Executive Council
Leaders Shaping the Future of Business

Get Tax Breaks For Going Green

Federal and state tax credits are available for eco-friendly IT projects. Are you taking advantage of them?

By Cindy Waxer

AS IF significant savings on electricity bills weren't enough, IT managers have another reason to embrace environmentally friendly IT practices: a bevy of federal, state and local tax incentives that could tip the scales to make green IT projects financially attractive.

However, companies have been slow to take advantage of the available incentives, essentially leaving money on the table. One reason is that many tax incentives are for solar energy, which is still expensive. Another reason is that CIOs — who don't often talk with tax experts — may not be aware of what's available.

Among the federal tax incentives is the Energy-Efficient Commercial Buildings Tax Deduction, part of the Energy Policy Act of 2005. (Subsequent legislation extended this deduction through 2013.)

Companies can claim a tax deduction of $1.80 per square foot on new or existing buildings by installing interior lighting, heating, cooling, ventilation or hot water systems that reduce a building's total energy and power costs by 50% or more.

"If an IT manager is looking to retrofit or construct a data center, this particular incentive is absolutely appropriate — almost a given," says Jenny Bravo, a director at Deloitte Tax LLP. "A 50% reduction [in energy and power costs] for a well-planned data center is absolutely doable."

If a building doesn't qualify for the full deduction, it could be eligible for a partial one. For example, if a building doesn't meet the requirement for 50% energy savings,

© FOTOLIA / KENTOH

it could still qualify for a $0.60-per-square-foot deduction if renovations reduce energy costs by at least 16.66%.

In addition, the American Recovery and Reinvestment Act of 2009 — as the federal government's economic stimulus package is officially known — extends or modifies existing incentives for renewable energy investments. The ARRA extends the duration of the 30% tax credits for solar energy, fuel cells and microturbines for eight years. It also establishes new 10% tax credits for small wind-energy systems, geothermal heat pumps, and combined heat and power systems.

The business energy investment tax credits are available for systems up and running by Dec. 31, 2016. The ARRA also allows businesses to receive federal cash grants for new installations, which can lure organizations that aren't eligible for tax credits.

STATE TAX BREAKS

Tax incentives from state governments can also make a green IT initiative look better on a financial spreadsheet. "Rarely do you see companies, if they're looking at a return on investment, find a federal incentive robust enough to move forward. They need to have a state incentive as well," says Bravo.

For example, New York and Oregon offer tax incentives for green buildings. North Carolina offers a 35% tax credit for renewable energy equipment expenditures, such as solar space heating. And Virginia allows local jurisdictions to exempt or partially exempt solar energy equipment or recycling equipment from local property taxes.

Incentives For Green IT

A survey of 752 IT managers found that only 44% of them get some form of incentive for improving energy efficiency. The 331 respondents who do receive incentives cited the following types:

- Part of employee's performance appraisal: 39%
- Green award or certificate for the organization: 34%
- Internal award for the responsible staff member(s): 22%
- Utility rebate for the organization: 20%
- Federal tax credit for the organization: 20%

Base: 331 IT managers who receive incentives; multiple responses allowed

SOURCE: CDW CORP. ENERGY EFFICIENT IT STUDY, AUGUST 2009

Despite these tax breaks, IT managers say solar energy still isn't affordable for most data centers.

In 2005, Highmark Inc., a Pittsburgh-based medical insurer, built a green data center that was certified by the U.S. Green Building Council. Mark O'Gara, Highmark's vice president of infrastructure management, says the company initially evaluated the pluses and minuses of incorporating solar power into the data center's design but determined that "the economics of solar power still aren't quite there."

"We did the analysis on current electricity rates for retrofitting some solar panels, and the ROI didn't pan out from an investment perspective," O'Gara says.

A lack of awareness — and a lack of internal communication between CIOs and company tax experts — is also to blame for some companies' failure to take advantage of tax breaks.

"IT guys aren't thinking about tax law. They're not plugged into what utilities in their region are doing in terms of incenting investments in energy efficiency," says Christopher Mines, an analyst at Forrester Research Inc. For this reason, Mines recommends creating an ad hoc team of various department heads to discuss green IT projects and spread the word on how government incentives can strengthen the business case for them.

O'Gara acknowledges that while "there's an opportunity for the government to be an evangelist" for green IT tax incentives, it's the CIO's responsibility to find out what types of credits and deductions are available.

Some organizations aren't eligible for tax credits at all. For example, American College Testing Inc. in Iowa City has a new data center that features a geothermal cooling system, but as a not-for-profit organization, ACT doesn't qualify for federal or state corporate tax credits. However, its motivation for building the environmentally friendly building had little to do with the bottom line. The green design "just made sense for our project," says Tom Struve, ACT's assistant vice president of central services. "And it really didn't add all that much to our costs."

Phil Nail is of similar mind. He's the chief technology officer at Affordable Internet Services Online Inc., a Romoland, Calif.-based Web hosting company that's completely solar-powered. But Nail says AISO's green IT initiatives preceded the introduction of energy investment tax credits.

Not that he has any regrets. "We don't look at [our green IT initiatives] as, 'If we don't get these tax incentives, then we're not going to do it,' " Nail says. "We just do it anyhow. It's the nature of how we are and the nature of our business." ■

Waxer *is a freelance writer in Toronto. Contact her at cwaxer@sympatico.ca.*

Check Out Utility Rebates, Too

Green IT experts say CIOs shouldn't neglect utility rebates that could boost the financial appeal of investing in energy-efficient IT.

For example, San Francisco-based Pacific Gas and Electric Co. offers rebates for desktop PC power management software and for virtualization and server consolidation projects. Last year, PG&E gave NetApp Inc. a $1.4 million rebate for constructing a highly energy-efficient data center in Sunnyvale, Calif.

In a CDW Corp. survey of 752 IT managers, 24% of the respondents said their local utilities offer rebates or other financial incentives for energy efficiency. But more than one-third (36%) said they didn't know if their utility offers such rebates.

Of the 114 IT managers whose utilities offer rebates applicable to their projects, 34% said that they deemed those incentives to be "extremely significant," and another 58% called the utility rebates "somewhat significant."

– MITCH BETTS

Meet Me In the Quad

Delivering more than just online classes, the Virtual Campus lets students meet with instructors, access financial aid, participate in clubs and more. **By Mary K. Pratt**

THE COMPUTERWORLD HONORS PROGRAM

At a Glance

Organization: Career Education Corp. in Hoffman Estates, Ill., is a for-profit company that runs 10 postsecondary educational institutions offering certificates and degrees in five core areas. Founded in 1994, it has 88 campuses in the U.S. and Europe. Some 114,200 students were enrolled last year.

Project champion: Vice President of IT Marwan Alamat

IT team: A team of about 10 IT employees initially developed the Virtual Campus. Today, CEC's IT department is 230 workers strong. In addition to maintaining the Virtual Campus and developing new capabilities for it, the IT department provides 24/7 support to the students and faculty who use it.

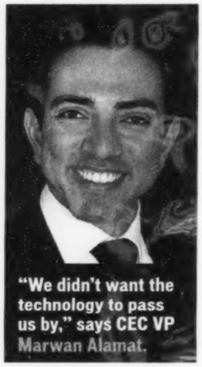
Project ROI: The company declined to say how much it spent to develop the Virtual Campus, but CIO Manoj Kulkarni says spending on the Virtual Campus is part of the overall annual IT budget, which is 3% to 4% of CEC's revenue. Company officials haven't calculated a specific ROI but say the return comes from delivering a better online experience to students, which helps with recruitment and retention.

COLLEGES and universities are like any other service providers: They must have online capabilities if they want to compete.

The stakes in education are high. Approximately 2.1 million students were enrolled in online programs last fall, according to Eduventures Inc., a Boston-based research and consulting firm. In addition, another 2 million people have taken at least one online course in the past year.

"If you're going to be in the growth game in education, you'd better be involved online," says Wallace Pond, CEO of Colorado Technical University, part of Career Education Corp.

To better serve its online students, CEC built a system called the Virtual Campus that's designed to raise distance education to a whole new level. The Virtual Campus provides students with much more than a platform for taking a class. It gives them an online community that mirrors a brick-and-mortar campus.


"We didn't want the technology to pass us by," says CEC VP Marwan Alamat.

In recognition of its Virtual Campus initiative, CEC was chosen as the 2009 *Computerworld* Honors program award recipient in the Education and Academia category.

"Most online students elsewhere just go into a Web site, but they don't have the campus at their fingertips. Ours is so much more comprehensive. When you go into the Virtual Campus, you have access to an actual university," Pond says.

Gerry DiGiusto, a senior analyst at Eduventures, agrees, saying that most online programs have had "e-mail, chat rooms, material online, but nothing that extended too far beyond the pedestrian user's experience."

"Virtual Campus has taken it beyond that. You can feel that sense of community. It's a fuller experience," says DiGiusto.

A RICHER SYSTEM

CEC started work on the first iteration of the Virtual Campus in 2001, building it for its three online schools: American Intercontinental University, Colorado Technical University and the International Academy of Design & Technology.

"We didn't want the technology to pass us by," says Marwan Alamat, vice president of IT at CEC and part of the original team charged with developing the online campus.

CIO Manoj Kulkarni says that from the start, CEC officials wanted to provide an "integrated learning experience" where students could access instructional material, connect with others and perform administrative tasks. CEC leaders realized that they'd have to build the Virtual Campus if they wanted to deliver that type of experience.

"When we started developing the

concept of the Virtual Campus, there was nothing like it," says Alamat. "There were no products like it in the market. There were just pieces of it."

CEC's developers built the Virtual Campus in traditional IT fashion: through trial and error. Alamat acknowledges that some pieces of the system were built multiple times before the team got them right.

The IT team did use some off-the-shelf technologies. They chose Adobe Acrobat Connect (formerly Macromedia Breeze) for the live interaction platform because it allowed for tight integration yet was easy to use. They also implemented antiplagiarism software called Turnitin from iParadigms LLC in Oakland, Calif.

The resulting Virtual Campus lets students attend classes, visit an online library, meet with instructors, tutors and other students, access financial aid and other administrative services, and participate in clubs. They can also take part in social activities through areas like the Virtual Commons and can even attend virtual graduation ceremonies. Instructors can interact with students and one another, and they can access course development systems.

CEC wanted to offer an "integrated learning experience," says CIO Manoj Kulkarni.

"I have taught for many online institutions that did not even come close to the capabilities of the Virtual Campus," says Cindy Roberts, a math instructor and member of the curriculum design team at Colorado Technical University, via e-mail. "Most institutions have text-based-only discussion boards for communications with the students."

Alamat acknowledges that the developers faced several challenges. They had to recognize, for example, that not all instructors and students had Flash multimedia software or access to high-speed Internet connections (an issue that persists even today), so the Virtual Campus had to work for people using varying types of equipment.

The IT team also had to build a system that would work for users with different levels of technical expertise, Kulkarni says. Thus, the features and functions of the Virtual Campus had to be easy to use and seamless.

And the developers have had to keep up with new demands and add new features as technology has evolved. Among other things, they've built mobile versions of the Virtual Campus, added support for podcasting and built iPhone-friendly capabilities.

EVEN MORE TO COME

"Our understanding of how to leverage technology to make it more exciting for students is growing," Pond says, explaining that CEC is looking at using virtual world and gaming technologies to deliver lessons. It is also moving ahead with a tool called MUSE (short for "my unique student experience"), which lets students choose the format in which their course materials are delivered (i.e., text or audio).

So far, more than 500,000 students have used the Virtual Campus, and CEC officials say the platform is important to student success. "It's all about retaining students and helping them graduate, and technology plays a role in that," Kulkarni says.

Carlos Ramos, an employee service representative at Goodwill Southern California in Los Angeles, received a bachelor's degree in human resources and is working on a master's in operations management online through American Intercontinental University.

"They have everything you need to have a fruitful experience," he says. He adds that having the opportunity to network with other students through the Virtual Campus helped him stick with the program.

Pond says the Virtual Campus puts CEC in a strong competitive position, because more and more people are expected to go online for an education.

"The quality, the sophistication and the user-friendliness of the experience becomes extremely important to students," Pond says. "We are well positioned to meet that consumer need." ■

Pratt *is a* Computerworld *contributing writer in Waltham, Mass. Contact her at marykpratt@verizon.net.*

Benefits on the Bleeding Edge

When Career Education Corp. started to build its Virtual Campus in 2001, the company went to the bleeding edge, says IT Vice President Marwan Alamat.

To get there, the IT organization became an early adopter of some technologies and found new ways of using existing ones, he says. That meant accepting risks and failures. It also required a strong relationship with other business units, to ensure that everyone was on board with the vision.

Having a culture that supports risk-taking is a requirement if a company wants to have an innovative IT department, according to Ian Hayes, president of Clarity Consulting Inc. in Beverly, Mass.

"There has to be a risk tolerance, and it has to come from the top of the company," he says.

Companies that have bleeding-edge IT departments also have to commit to this idea, assigning the brightest people to the task and giving them the time and money they need, Hayes says.

"These are the companies that are willing to invest in innovation over operational efficiency," he says, adding that most IT operations are very incremental in the way they think, and focus more on cutting costs.

Christine Bullen, a senior lecturer at the Howe School of Technology Management at Stevens Institute of Technology in Hoboken, N.J., says companies that don't support some cutting-edge activities today are likely missing an opportunity. History has shown that businesses that invest in innovation during down economies generally emerge as the strongest organizations when things turn around.

"There will be opportunities, and you have to be looking for them," says Bobby Cameron, an analyst at Forrester Research Inc.

– MARY K. PRATT

■ **QUICKSTUDY**

Drupal

This open-source content management system offers a flexible way to build and organize Web sites.

By Russell Kay

DRUPAL is free content-management software designed to let an individual or user group publish, manage and organize Web sites that feature a wide variety of content. Drupal is currently being used to power community Web portals, discussion sites, corporate Web sites, intranet applications, personal Web sites and blogs, fan sites, e-commerce applications, resource directories and social networking sites. Recently, the Obama administration adopted Drupal as the foundation for the WhiteHouse.gov Web site.

The standard release, known as Drupal core, lets users do the following:

- Register and maintain individual user accounts within a role-based permission and privilege system.
- Create and manage menus.
- Create, manage and aggregate RSS feeds.
- Customize page layouts.
- Perform logging.
- Index and search all content in the system.

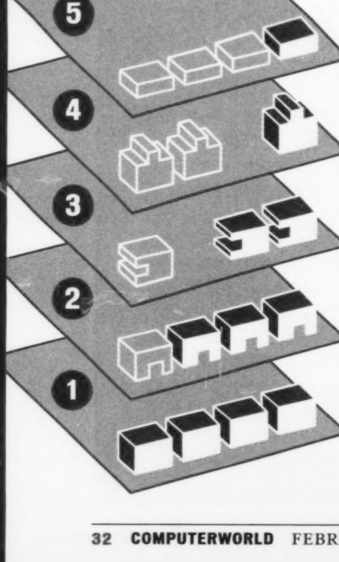
The basic Drupal installation allows the creation of classic static Web sites, single- or multiuser blogs, Internet forums or online communities that can handle user-generated content. New features can be added via plug-in code known as contrib modules, which have been used for collaborative authoring environments, peer-to-peer networking and podcasting, for example. Drupal can run on any server platform that also supports PHP and a database for storing content and settings. The software is distributed under the GNU General Public License.

Drupal was originally written by Dutch student Dries Buytaert to produce a small site that allowed friends to leave notes about network status and share personal news. Buytaert wanted to name the site *dorp* (Dutch for *village*) because of its community aspects, but he mistyped the domain name as *drop* and decided the erroneous version sounded better. Drop.org turned into a place for personal experimentation with new Web technologies, and in January 2001 Buytaert released the software as open source. Drupal comes from the English pronunciation of the Dutch word *druppel*, meaning *drop*. ■

Kay *is a* Computerworld *contributing writer in Worcester, Mass. Contact him at russkay@charter.net.*

COMPUTERWORLD.COM

WANT MORE?
For a complete archive of QuickStudies, go to **computerworld.com/quickstudies**



How It Works

Within Drupal, five main layers keep things organized and flexible.

① DATA: The core of the system is the data pool.

② MODULES: These are functional plug-ins that expand a site's capabilities.

③ BLOCKS AND MENUS: These provide a module's output or display whatever is wanted; menus provide a choice of options and navigation.

④ USER PERMISSIONS: These settings determine which functions different user types have access to.

⑤ TEMPLATE: This is the surface layer, predominantly XHTML and CSS, with some PHP.

SOURCE: DRUPAL.ORG

Definition

Drupal is an open-source Web content management system written in PHP. It serves as the back-end system for many different types of Web sites, ranging from personal blogs to corporate collaboration applications and government sites.

Drupal: Yes or No?

DRUPAL MIGHT BE A VERY GOOD CHOICE WHEN YOU NEED A WEB SITE THAT . . .

- Is flexible enough to evolve in any direction and add features.
- Can be easily configured to interact with other sites and technologies.
- Can handle complex forms and workflows.
- Allows you to create your own content types, such as custom fields.
- Can quickly organize and display lists of information.
- Meets your needs with one or more existing Drupal modules.
- May require you to quickly develop custom functionality.

DRUPAL MIGHT NOT BE THE BEST CHOICE IF . . .

- Your needs are limited in scope, such as just writing a personal blog, creating a wiki or hosting a discussion forum.
- You aren't prepared to spend time learning how Drupal works – its learning curve can be steep.
- You absolutely need backward compatibility. Drupal's designers have chosen to forgo this with each new major revision.
- Performance is critical to you; in some tests, Drupal's high query rate has adversely impacted scalability and performance relative to other systems, such as Joomla.

– RUSSELL KAY

■ SECURITY MANAGER'S JOURNAL | MATHIAS THURMAN

Delivering a Message to Asia

A trip to **China and India** is an opportunity to **rally the troops** on security matters.

Trouble Ticket

AT ISSUE: The CEO is concerned that the company's product could become infected.

ACTION PLAN: Educate the employees on the front lines.

SHORTLY AFTER we dealt with the "Operation Aurora" malware outbreak that I talked about in my previous column, I had to travel to Asia. It seemed like a good time to address some concerns that had arisen from that incident.

I had stops in Hong Kong and several cities in China and India. When I visit China, I tend to emphasize the protection of intellectual property more than I do in other places. There are two reasons for this. First, much of the engineering of our products is done there, as is the manufacturing. Second, we have suffered IP theft in China, and there is consensus within the industry, backed up by reports in the press, that China and Russia are the worst places for IP violations (although I've seen plenty of cases right here in the U.S.).

As for India, my company has many sorts of operations there. We outsource some engineering to India, and much of our support is located there, including our help desk. But the main reason India interests me is that we outsource some of our security work to third parties in that country. I have several security analysts and engineers in India who are crucial to the protection of the company's infrastructure. They are responsible for things like monitoring our intrusion-detection sensors, driving our incident response process, evaluating security patches, making changes to our content filtering engines and operating some of our vulnerability management tools.

So for the India-based infosec team, I'm not just that security guy from headquarters; I'm the boss. I think they appreciate that the company is willing to spend the time and money to send me there in person as often as it does. It makes them feel like they really matter. And they do. My message to them is that they play a critical role in the success of our company, and their continued attention to detail is imperative to the success of the infosec program and the protection of our intellectual property.

■ Our CEO never wants to hear from a customer that we sold them a Trojan horse.

Of course, on every site visit, I do certain things, many of which I have mentioned before. I usually start with a physical site inspection, checking out access systems, data center security and security guards. I then conduct a standard network and infosec assessment that includes vulnerability scans of desktops, servers and network devices, and searches for unauthorized wireless access points and other rogue equipment. There's some awareness training to highlight the importance of patches, antivirus software and the ramifications of falling prey to phishing attacks. And I give a stern lecture about IP protection.

DOUBLE-CHECK

The reason why Operation Aurora was given special attention during this trip is that our products have the Windows operating system incorporated in them. I don't want to get too specific, in the interest of remaining anonymous, but it is needed to run an application that controls the mechanics of the products. This allows our customers to perform very sophisticated operations on our products.

The operating system and application are loaded via a "gold" image, which lets us certify that both are installed exactly as they should be. The danger is that postinstallation procedures are required that involve connecting the completed product to our corporate network. Naturally, then, any malware that has infiltrated the network can get into our product. That worries me, and it worries our CEO, who never wants to hear from a customer that we sold them a Trojan horse. And therefore, I stressed to the engineering and operations teams the importance of developing code securely and ensuring that our tools are certified clean upon delivery to our customers by properly deploying antivirus and security patches. It's a message whose importance I can't overemphasize. ■

This week's journal is written by a real security manager, **"Mathias Thurman,"** *whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com.*

COMPUTERWORLD.COM

JOIN IN
To join in the discussions about security, go to **computerworld.com/blogs/security**

OPINION

Paul Glen

Old Ideas May Not Fit New Endeavors

WITH THE ECONOMY picking up, enterprises are cautiously starting new projects. Managers are tiptoeing over to their backlogged to-do lists and gingerly picking out projects that can no longer be delayed. That's good news for all of us.

We like building and fixing things. We like progress. And we like having jobs and paying the rent.

Understandably, managers are taking extra precautions to make sure that these first new investment projects go well; they don't want to start with a bad project that kills what little momentum they have. You can't fault them for doing everything they can to ensure success. It's just that some perceived guarantors of success are no such thing.

What I've especially noticed lately is managers trying to preclude failure through their project staffing choices. Many are assigning people to projects, or even hiring new people, because they have successfully done the exact same sort of project before. Naturally, it's a good idea to hire competent and experienced people. But the assumption that previous success guarantees future success is flawed.

At the heart of this fallacy is the fact that successful people rarely know why they were successful. In itself, that isn't a problem. The trouble is that they *think* they know why they were successful. They believe that their previous choices all must have been correct and will serve them well when they're confronted with a similar project. They're certain that the obstacles they overcame before can be avoided entirely or resolved in ways that are similar to what worked in the past.

The truth is that it is very hard to really understand the conditions that made certain choices work and others not. It is far too easy to extrapolate a single data point into a rule.

The assumption that previous success guarantees future success is flawed.

This leads to the inappropriate transport of ideas from one time to another, from one organization to another, from one culture to another or from one technology to another without the necessary critical evaluation as to whether they will really work in the new setting. It's like taking a rainforest fern and planting it in Death Valley without considering the conditions of the new location.

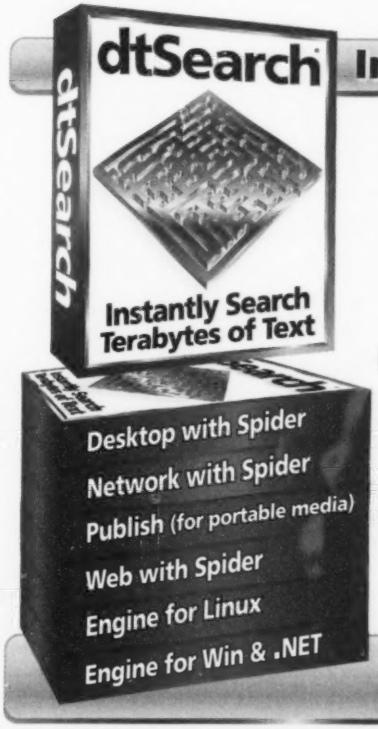
Like that thirsty fern, project solutions are highly dependent on their environmental fit for success.

Technology arises in response to environment. Specific technical architectures are needed to deal with legacy systems. Many of the things we build are quite different from what we would create in a pristine environment. We make architectural compromises to connect new systems and data to older systems. We design things to meet the security concerns of a particular organization or regulatory body. We build systems that reflect the organizational structure and territoriality of the users and even the technical staff. Some systems are built to accommodate the personal relationships and animosities of particular managers.

I'm thinking not just about the end product of a project, but about all the human technology that is involved in the creation of that end product. Processes are built to manage the structure, culture and politics of a particular place. Managerial approaches are specific to an organization or to the complexity of a project. Team structures either resonate or conflict with their host groups.

To address this risk, make sure that your projects are staffed with people with a mix of experiences, both technical and organizational. And watch carefully to ensure that ideas adopted from previous projects make sense in yours. Experience counts, but so does the critical assessment of why something worked before. ■

Paul Glen *is a consultant who helps technical organizations improve productivity through leadership, and the author of the award-winning book* Leading Geeks *(Jossey-Bass, 2003). You can contact him at info@paulglen.com.*


dtSearch
dtSearch
Instantly Search Terabytes of Text
Desktop with Spider
Network with Spider
Publish (for portable media)
Web with Spider
Engine for Linux
Engine for Win & .NET

Instantly Search Terabytes of Text

- ◆ 25+ full-text and fielded data search options
- ◆ Built-in file parsers and converters highlight hits in popular file types
- ◆ Spider supports static and dynamic web data; highlights hits with links, formatting and images intact
- ◆ API supports C++, .NET, Java, SQL, etc. .NET Spider API. Includes 64-bit (Win/Linux)
- ◆ Fully-functional evaluations available

Content extraction only licenses also available

"Bottom line: dtSearch manages a terabyte of text in a single index and returns results in less than a second" — InfoWorld

dtSearch "covers all data sources ... powerful Web-based engines" — eWEEK

"Lightning fast ... performance was unmatched by any other product" — Redmond Magazine

For hundreds more reviews, and hundreds of developer case studies, see www.dtSearch.com

1-800-IT-FINDS • www.dtSearch.com

The Smart Choice for Text Retrieval® since 1991

Personalized IT newsletters from Tech Dispenser.

You pick the topics. You pick the sources. You pick the frequency.

Build your own newsletter featuring your favorite technology topics — cloud computing, application development, security — over 200 timely topics, from more than 700 trusted sources.

Get started today. It's free.
www.techdispenser.com

TECH DISPENSER
Refreshingly personal newsletters

Career Watch

DISCONTENT RIFE IN THE WORKPLACE

In a recent survey, 51% of 1,006 workers polled reported that they feel stagnant in their jobs. The following statistics illuminate their discontent.

STAGNANT WORKERS FEEL STUCK

In contrast to the respondents who described themselves as stagnated (whose responses are shown below), 26% of those who said they're content in their jobs said they are being asked to take on exciting new challenges, and only 9% said they want to find a new job. **What best describes your situation? (Responses of those who said they feel stagnant.)**

- No room to advance: **32%**
- Want to leave but economy prevents it: **26%**
- Being asked to do more: **15%**
- Job function changed: **8%**
- No opportunity for development or training: **7%**
- Boss is blocking advancement: **4%**
- Being asked to take on new, exciting challenges: **3%**
- Role dialed back: **3%**
- Mandatory leave: **2%**

THEY ARE BORED AND DOING TIME

More than half (53%) of self-described contented workers said they are interested in what they do, and only 20% of them said, "I just do my job and go home." But very few stagnant workers are like Wally in "Dilbert," trying to get by with as little effort as possible. **What phrase best describes your attitude about your job?**

- I just do my job and go home: **46%**
- Interested in what I do: **29%**
- Wish I could do more/had more responsibility: **16%**
- I do what is expected of me but no more: **7%**
- Excited to go to work: **6%**
- Try to get by with as little effort as possible: **3%**

Note: Multiple responses allowed.

THEY DON'T PLAN TO STICK AROUND

As a result of feeling that your career is stagnant, which of the following are you more likely to do?

- Look for another job when the economy improves: **44%**
- Do what I'm told, nothing more, nothing less: **19%**
- Go back to school: **13%**
- Other: **9%**
- Network with others (within and outside of my organization): **7%**
- Ask for additional development or assignments: **7%**
- Find a mentor: **1%**

SOURCE: DEVELOPMENT DIMENSIONS INTERNATIONAL'S SUMMER 2009 "PULSE OF THE WORKFORCE" SURVEY OF 1,006 INDIVIDUAL CONTRIBUTORS IN THE U.S.

PAGE COMPILED BY JAMIE ECKLE.

Q&A

Kristine Harper

The leader of **zNextGen,** an offshoot of the IBM user group Share, discusses its efforts to recruit and retain young professionals for careers in enterprise IT.

Why do young people currently entering the enterprise workforce need a user group of their own?
As a young female working on the mainframe, I have found that there are very few opportunities to network and socialize with peers in the business because of the age difference. I think the chance to network, communicate and socialize for educational and professional reasons is very appealing for the zNextGen mainframers out there. When a new enterprise computing professional enters this workforce, it is encouraging to have this support group to share their own experiences with, and to learn from others' experiences as well. It can be overwhelming to dive into a mainframe career, so building up a support system that includes mentors, friends and resources is very important.

Can a group like zNextGen really help attract the younger generation to IT?
Sometimes it's hard to remember that zNextGen began "simply" as a project of Share. We still are. However, the impact of zNextGen has reached beyond the Share spectrum. I wouldn't say that zNextGen necessarily has the power to influence one's career decisions. However, once that decision has been made, zNextGen certainly can be a new mainframer's guide to networking, communication and educational outlets. Knowing that there is a whole group of new mainframe professionals out there like you can be very encouraging.

How does it go about doing that specifically?
Despite what some people may think, my generation does have ambition and the desire to face challenges. I find that many of us new mainframers have this inner drive and desire to learn something new every day, to figure things out. As my generation discovers this career path, they get excited about finding a career that satisfies and feeds their desire to learn and excel. Granted, it's not for everyone, but I think that is certainly one thing that makes this career appealing – the fact that it is not a stagnant line of work. There is always something new to learn, and you are constantly being challenged to grow.

Enterprise computing technology will never reach a plateau. In this economy, as much as people may want jobs, even more so, they want careers – challenging and rewarding careers that bring home a good salary from Day One.

– JAMIE ECKLE

IT Professionals needed for established worldwide firm. Specific needs for Software Engineers, CRM Practice Managers & IT Compliance Analysts. Technical positions require BS in Engg. or CS and relevant industry experience. Managerial positions require MS degree in Engg. and relevant industry experience specific to job duties. Will consider applicants with BS degree and significant industry experience. Positions located in Parsippany NJ headquarters and subject to relocation throughout the US. Send resumes to: Satyam Computer Services, Ltd., One Gatehall Drive, Suite 301, Parsippany, NJ 07054. Attn: HR-Job order #022210

IT Corp., Aliso Viejo, Orange County, CA and at unanticipated client sites across the U.S. has openings for Software Engr., System/ Programmer Analyst, Project Leader/Manager, Biz Dev Consultant and Biz Analyst. Mail resume and position desired attn to HR- Jude Patrick James, UST Global Inc. 120 Vantis Ste 500 Aliso Viejo CA 92656.

ATTENTION...

Law Firms
IT Consultants
Staffing Agencies

Are you frequently placing legal or immigration advertisements?

Let us help you put together a cost-effective program that will make this time-consuming task a little easier!

Place your Labor Certification Ads here!

COMPUTERWORLD
COMPUTERWORLD
COMPUTERWORLD
READY TO ROLL

For more information contact us at:

800.762.2977

IT|careers

Calif based IT co. has multiple openings at its U.S. offices and at unanticipated client sites across the U.S. for Software Eng. Progrmmr. Analyst, Systems Analyst, Project Leader/Mgr., System Mgr., ERP Consultants, Biz Dvlpmnt. Consultant & Biz Analyst. Mail resumes to RJT Compuquest Inc., 23440 Hawthorne Blvd., #210, Torrance, CA 90505, Attn: HR

Info Services, LLC seeks programmer/system analyst, software engineers, DBA using various tools. Must have MS or BS with related IT exp. Travel required. Send resume to hr@infoservicesllc.com.

Electrical engineer. Design & develop software for control systems including CNC/PLC, Install safety & electrical engineering criteria. Candidates must have MS or BS+5yr exp. Send resume: Heller Machine Tools, 1225 Equity Dr, Troy, MI 48084

FocusVision Worldwide, Inc. seeks Operations Research Analyst to work in Stamford, CT. Masters degree and experience required. Email resume to COO at ITResumes@focusvision.com . Must put job code OpRA on resume.

Computers
Capgemini (Rosemont, IL) seeks exper. prof. consultants for the following positions: Managers (ref. #22A) & Lead
Consultants (ref. #22B) to manage consulting teams & client relationships. Also seeking Sr. Consultants (ref. #22C) &
Bus. Analysts (ref. #22D) to design develop test & implement bus. systems software apps. Email resume to: georgeann.bosco@capgemini.com & reference appropriate job#. No calls. Capgemini is an affirmative action employer/EOE.

Computer Professionals (Multiple Openings), South Plainfield, NJ & other client locations: Involve in all phases of SLDC process, analyze, design, develop, implement, customize, & maintain applications & systems. Good understanding of Financial Services & Insurance domain. Salary DOE. BS/Equi in CS, MIS, CIS, Math, Tech, Com, Bus, Archi, Eng (any), or related W/5 yrs of Exp in any of the following skills: 1. Java, J2EE, Web Services, Dragon Designer, SOAP, Struts, JSF, Hibernate, PL/SQL, XML, JavaScript, Weblogic, Websphere, Tomcat, JBoss, JRun, Oracle 8i/9i, SQL Server, DB2, Eclipse, WSAD, VSS, Rational Rose, TOAD, JUnit, UNIX, Linux, & Win NT/2000/XP & ref MMR-02-2010. 2. C++, Java, JDBC, JSP, Ajax, Spring, Tomcat, JUnit, Web Services, SOAP, MQ Series, J2EE, MVC, Struts, Spring, Hibernate, DB2, Oracle 9i, Eclipse, WSAD, Tomcat, Weblogic, WAS, WPS, Requisite Pro, Drools, Rule Engine, OOAD, RUP, Agile, Linux, & Win 2000/NT/XP & ref SR-01-2010.
Email resume:
jobs@valuemomentum.com or mail to ValueMomentum, Inc 3001 Hadley Road, Unit 8, South Plainfield, NJ 07080.

IT Professionals needed for established worldwide firm. Specific needs for Programmer Analysts, Software Engineers, Program/Project Managers, and Client Service Manager (VP level). Technical positions require BS in Engg. or CS and relevant industry experience. Managerial positions require MS degree in Engg. and relevant industry experience specific to job duties. Will consider applicants with BS degree and significant industry experience. Positions located out of company's New York, NY headquarters and subject to relocation throughout the US. Send resumes to: MajescoMastek, 5 Penn Plaza, New York, NY 10001, Attn: HR/Anupreeta Singh.

Ritham, Inc. seeks Programmer Analyst, SAP Developer to customize applications using special tools per project requirements. Require MS/BS with 1-5yr exp. Travel required. Send resume to Manoj.kidiyoor@ritham.com.

Software Engineer, Programmer Analyst, DBA wanted by Infotree Service. Design Object Oriented Concepts & IT applications. Require MS or BS+5-yr IT exp. Jobsite various. Send resume to sales@infotreeservice.com.

Systems Analyst, Piscataway, NJ & other client locations: (Multiple Openings) Analyze, design, develop, implement, & customize application & system based on user needs. Salary DOE. BS/Equi in CS, MIS, CIS, Math, Tech, Bus, Eng (any), or related W/2 yrs exp in any one of the skill set: 1. SQL Server, Visual Studio, Visio, MS Project, VSS, T-SQL, ASP.NET, VB.Net, C#, ASP, VB Script, Jscript, XML, HTML, DHTML, IIS, .NET Framework, & Win NT/00/XP & ref CS1068. 2. J2EE, PL/SQL, RPG, Oracle, SQL Server, DB2, AS/400, UNIX, Rational Rose, RUP, Clear Quest, Rational Requisite Pro, Visio, Microsoft Project, VB, VB.Net, PVCS, VSS, Retail Domain, Retail ERP Packages, Oracle Retail, & JDA.& ref SMP1072. 3. Adex, Qedit, MPEix, Assent, ISPF, VPLUS, Turbo Image, Adager, Queryman, Data Express, PL/SQL, Oracle, Toad, CICS, VSAM, MVS, Xpediter, Eazytrieve, JCL, STGen, Report Wrapper, Win NT/2000, OS/390, & HP Mainframe 3000 & 9000 & ref KS1066. 4. Oracle 8i/9i/10g, MySQL, QTP, Test Partner, Load Runner, Test Suite, Quality Center, Test Director, Clear Quest, Bugzilla, CVS, VSS, Win 2000/XP, Linux, Unix, Macintosh Snow Leopard, C, JAVA, VB, VBA, SQL, PL/SQL, HTML, & Shell & ref KA1070. Email: resumes@infospantech.com
or mail Infospan Technologies, 15 Corporate Place South, Suite #312, Piscataway, NJ 08854.

Computer: Systems Analyst, Piscataway, NJ & other client locations: (Multiple Openings) Analyze, design, develop, implement, & customize application & system based on user needs. Salary DOE. BS/Equi in CS, MIS, CIS, Math, Tech, Bus, Eng (any), or related W/5 yrs exp in any one of the skill set: 1. Websphere, JBoss, Weblogic, JAXB, SOAP, WSDL, Eclipse, Rational Rose, FileNet, Oracle, DB2, SQL Server, Toad, Win NT/2000/2003, Linux, Sun Solaris, J2EE, C, C++ , SQL scripts, JavaScript, Struts, Hibernate, JUnit, JSP, AJAX, JavaScript, Log4J, Visio, & Erwin & ref TVM1064. 2. C, C++, Visual Basic, Assembly, Java, ORACLE, SQL Server, TIBCO, MQ Series, EJB, JBuilder, VSS, Eclipse, Weblogic, Websphere, MVC, JABX, Struts, Spring, LOG4J, LDAP, SOAP, & Win NT/XP/2000 & ref BP1062. Email resumes@infospantech.com or mail Infospan Technologies, 15 Corporate Place South, Ste #312, Piscataway, NJ 08854.

Sr. Software Engineer needed for (Bergen) NJ based IT firm to Research, design, develop & test operating systems-level software, compliers & network distribution software for medical, industrial, communications, business, scientific & gen'l computing applications. MS in Computer Science or Eqiv. Req'd. F/T position. Mail resume to H.R. Dept, CAT Technology, Inc 377 Route 17 South, # 208, Hasbrouck Hts, NJ 07604 or email resume to resumes@catamerica.com.

SharkTank

TRUE TALES OF IT LIFE AS TOLD TO SHARKY

Now *That's* Change Management

This IT contractor pilot fish is more than a little intimidated by Burt, the guy in charge of change management. "He made sure there were big, sharp teeth behind the change management process, and I was deathly afraid of him," she says. Then fish takes a bad fall while speed skating, breaks her neck and has to work for three months with a metal halo brace screwed into her skull. Finally fish's neck heals to the point that the brace can be removed. Next day, Burt walks into the weekly change management meeting, surveys the group and announces, "There has been an egregious violation of the change management policies, and this must be dealt with." The attendees look warily around the room as Burt continues: "Betty had her halo brace removed outside the Thursday night maintenance window. Plus, the change was never submitted for change management discussion." "Everyone laughed," says fish. "I found out that day that Burt was really a very nice guy – as long as you bought into change management."

Worth the Price

This otherwise excellent IT manager has a bad habit of tearing his employees' work apart in the middle of the office, says a pilot fish on the scene. "One day he drew up a plan that was seriously flawed, and I decided to give him a taste of his own medicine," says fish. "He gave me a copy of the plan. I read it, ripped it in half, threw it in the wastebasket and called it junk. He rose to the bait and said, 'You can't just say that.' Rolling up my sleeves, I started to destroy the entire plan point by point, highlighting all the flaws and asking which idiot had written this in the first place – in front of the entire office. Let's just say motivation and morale in the team increased. He had his own back, though. He set up a meeting for the next day, and guess who was nominated to draw up the new plan!"

Patience

Net admin pilot fish is walking through the office one day when he comes across a user screaming into her phone at some faraway tech-support guy because her postage meter won't update itself over the phone line. "I walked over and tried to lend a hand, but instead she gave me a death stare and said, 'I'll take care of these people.' I looked at the display unit, only to see that she had plugged the USB end of a dongle modem into the Ethernet port. I spent the next 10 minutes sitting next to her chuckling as the voice on the other end of the tech-support line got louder and louder as he couldn't figure out what her issue was. I now take care of the meter updating."

■ *Never mind the postage — send Sharky your true tale of IT life at sharky@computerworld.com. You'll get a stylish Shark shirt if I use it.*

COMPUTERWORLD.COM

DO YOU LOVE SHARK TANK? Then you might like Shark Bait. Dive in and dish the dirt with like-minded IT pros. **sharkbait.computerworld.com**

CHECK OUT Sharky's blog, browse the Sharkives and sign up for Shark Tank home delivery at **computerworld.com/sharky.**

■ COMPANIES IN THIS ISSUE

Page number refers to page on which story begins. Company names can also be searched at computerworld.com

Ace Hardware Corp. 26
Adobe Systems Inc. 31
Affordable Internet Services Online Inc. 29
Allstate Insurance Co. 24
Alteva LLC 17
American College Testing Inc. 29
American Intercontinental University 30
Analysys Mason 5
Apple Inc. 5, 10, 40
Ariba Inc. 20
AT&T Inc. 10
Aviva PLC 20
Birst Inc. 24
Career Education Corp. 30
Carnegie Mellon University 12
CDW Corp. 29
Clarity Consulting Inc. 31
Colorado Technical University 30
Creativity Inc. 22
Deloitte Tax LLP 28
Development Dimensions International 36
Distribution Market Advantage 22
District of Columbia Office of the Chief Technology Officer 8
Eduventures Inc. 30
Forrester Research Inc. 5, 6, 29, 31
Gartner Inc. 5, 10, 17, 24
Goodwill Southern California 31
Google Inc. 10, 14, 18, 40
HCL Technologies 6
Highmark Inc. 29
Howe School of Technology Management 31
IBM 36
IDC 17
IDC Partners 17
Intel Corp. 10
International Academy of Design & Technology 30
Intrax Cultural Exchange 20
iParadigms LLC 31
J.Gold Associates LLC 10
Juniper Research Ltd. 6
Michigan Department of Information Technology 18
Microsoft Corp. 10, 40
NetApp Inc. 29
Nokia Corp. 10
Pacific Gas and Electric Co. 29
Patni Computer System Ltd. 6
PivotLink 24
RBC Wealth Management 24
Salesforce.com Inc. 17, 22
Schumacher Group 18
Share 36
Stevens Institute of Technology 31
Sun National Bank 20
Sungard Data Systems Inc. 20
Systems In Motion Inc. 6
ThinkStrategies Inc. 22
U.S. Environmental Protection Agency 5
Virgin Mobile USA 6
Wells Fargo & Co. 6
Workday Inc. 18
Yammer Inc. 8
YouTube LLC 6
zNextGen 36

ADVERTISERS' INDEX

APC 11
apc.com/promo
Brocade 15
brocade.com/extra
CIO Executive Council Field Guide 27
council.cio.com/fieldguide
CTIA Wireless 2010* 20/21
ctiashow.com
dtSearch 35
dtsearch.com
Eset 3
eset.com
HP 25
hp.com/servers/roi22
IBM IT Intel C4
ibm.com/hs22
IBM Non Intel IT 7
ibm.com/collaborate
IBM Non Intel IT 9
ibm.com/intelligence
IBM Power 7 C2-1
ibm.com/poweryourplanet
Invest in Ontario 13
investinontario.com/innovation
Microsoft 19
itseverybodysbusiness.com/optimize
Qwest C3
qwestsolutions.com
SonicWALL 23
sonicwall.com/80kstrong

* Regional Select

This index is provided as an additional service. The publisher does not assume any liability for errors or omissions.

Periodical postage paid at Framingham, Mass., and other mailing offices. Posted under Canadian International Publication agreement PM40063731. **CANADIAN POSTMASTER:** Please return undeliverable copy to PO Box 1632, Windsor, Ontario N9A 7C9. Computerworld (ISSN 0010-4841) is published twice monthly by Computerworld Inc., 492 Old Connecticut Path, Box 9171, Framingham, Mass. 01701-9171. Copyright 2010 by Computerworld Inc. All rights reserved. Computerworld can be purchased on microfilm and microfiche through University Microfilms Inc., 300 N. Zeeb Road, Ann Arbor, Mich. 48106. Computerworld is indexed. Back issues, if available, may be purchased from the circulation department. Photocopy rights: permission to photocopy for internal or personal use is granted by Computerworld Inc. for libraries and other users registered with the Copyright Clearance Center (CCC), provided that the base fee of $3 per copy of the article, plus 50 cents per page, is paid directly to Copyright Clearance Center, 27 Congress St., Salem, Mass. 01970. Reprints (minimum 100 copies) and permission to reprint may be purchased from Ray Trynovich, Computerworld Reprints, c/o The YGS Group, Greenfield Corporate Center, 1808 Colonial Village Lane, Lancaster, Pa., 17601, (800) 290-5460, Ext. 148. Fax: (717) 399-8900. Web site: www.reprintbuyer.com. E-mail: computerworld@theygsgroup.com. Requests for missing issues will be honored only if received within 60 days of issue date. Subscription rates: $5 per copy: Annual subscription rates: – $129; Canada – $129; Central & So. America – $250; Europe – $295; all other countries – $295. Subscriptions call toll-free (888) 559-7327. **POSTMASTER:** Send Form 3579 (Change of Address) to Computerworld, PO Box 3500, Northbrook, Ill. 60065-3500.

COMPUTERWORLD

HEADQUARTERS
P.O. Box 9171, 492 Old Connecticut Path
Framingham, MA 01701-9171
(508) 879-0700
Fax (508) 875-4394

President/CEO
Michael Friedenberg
(508) 935-4310

Executive Assistant to the President/CEO
Diana Cooper
(508) 820-8522

Senior Vice President/ Group Publisher
Bob Melk
(415) 975-2685

Senior Vice President/ General Manager Online
Martha Connors
(508) 620-7700

Vice President/Marketing
Sue Yanovitch
(508) 935-4448

Senior Vice President/ Chief Content Officer
John Gallant
(508) 766-5426

Senior Vice President/ Human Resources
Patty Chisholm
(508) 935-4734

Senior Vice President/ Events
Ellen Daly
(508) 935-4273

Senior Vice President/ Online Sales & Operations
Gregg Pinsky
(508) 271-8013

Senior Vice President/COO Enterprise Services Group
Matthew C. Smith
(508) 820-8102

IDG

International Data Group Chairman of the Board
Patrick J. McGovern

CEO, IDG Communications
Bob Carrigan

Computerworld is a business unit of IDG, the world's leading technology media, research and events company. IDG publishes more than 300 magazines and newspapers and offers online users the largest network of technology-specific sites around the world through IDG.net (*www.idg.net*), which comprises more than 330 targeted Web sites in 80 countries. IDG is also a leading producer of 168 computer-related events worldwide, and IDG's research company, IDC, provides global market intelligence and advice through 51 offices in 43 countries. Company information is available at *www.idg.com*.

Sales Offices

Vice President/Publisher John Amato
john_amato@idgcommunications.com (508) 820-8279

■ NEW ENGLAND, SOUTHERN AND CENTRAL STATES

Director of Integrated Sales
Jeff Gallagher (508) 820-8133

Senior Sales Associate
Jess Roman (508) 271-7108

Mailing Address
P.O. Box 9171, 492 Old Connecticut Path
Framingham, MA 01701
Fax (508) 270-3882

■ WESTERN AND SOUTHWESTERN STATES

Director of Integrated Sales
Lauren Guerra (415) 978-3306

Sales Associate
Eran Butts (415) 978-3311

Mailing Address
501 Second Street, Suite 114
San Francisco, CA 94107
Fax (415) 543-8010

■ EASTERN AND SOUTHEASTERN STATES

Director of Integrated Sales
Hal Mentlik (631) 696-4498

Sales Associate
Megan Fadgen (508) 620-7761

Mailing Address
P.O. Box 9171, 492 Old Connecticut Path
Framingham, MA 01701
Fax (508) 270-3882

■ NORTHWESTERN STATES AND NORTHERN CALIFORNIA

Director of Integrated Sales
Neil Dhanowa (415) 978-3305

Sales Associate
Nida Thongnopneua (415) 978-3312

Mailing Address
501 Second Street, Suite 114
San Francisco, CA 94107
Fax (415) 543-8010

COMPUTERWORLD SUBSCRIPTIONS

Customer Service (888) 559-7327 toll free
Local or outside U.S. (847) 559-1573
E-mail: cw@omeda.com

CIRCULATION/DISTRIBUTION

Vice President
Debbie Winders (508) 820-8193

Circulation Manager
Diana Turco (508) 820-8167

Circulation Coordinator
Mary Kittredge (508) 820-8670

PRODUCTION

Vice President, Manufacturing
Chris Cuoco

Production Manager
Kim Pennett

Print Display Advertising
(508) 988-6909
Fax (508) 879-0446

STRATEGIC PROGRAMS AND EVENTS

Vice President, Marketing
Michael Garity (508) 766-5457

Vice President, Content Development
Derek Hulitzky (508) 620-7705

Vice President, Business Development, West
John Vulopas (508) 271-8024

Senior Director, Executive Programs, East
Sandy Weill (508) 620-7758

Vice President, SNW
Ann Harris (508) 820-8667

ONLINE ADVERTISING

Vice President/ Group Associate Publisher
Sean Weglage
(415) 978-3314
Fax (415) 543-8010

Online Sales Directors
James Kalbach
(610) 971-1588

Jennell Hicks
(415) 978-3309
Fax (415) 543-8010

Online Sales Manager
Matthew Wintringham
(508) 820-8218
Fax (508) 270-3882

Account Services Director
Bill Rigby (508) 820-8111
Fax (508) 270-3882

Online Sales Assistant
Joan Olson (508) 270-7112
Fax (508) 270-3882

IT CAREERS

Publisher
John Amato (508) 820-8279
Fax (508) 270-3882

Regional Account Manager
Enku Gubaie (508) 766-5487

LIST RENTAL

Postal and E-mail
Rich Green (508) 370-0832
rgreen@idglist.com

Mailing Address
IDG List Services, P.O. Box 9151
Framingham, MA 01701-9151
Fax (508) 370-0020

OPINION

Preston Gralla

Google, Microsoft, Apple: Who Will Thrive?

APPLE, GOOGLE AND MICROSOFT are locked in a three-way struggle for industry dominance, competing to varying degrees on hardware, computer and cell phone operating systems, applications, entertainment, Internet search and more.

Today, Google owns Internet search, Microsoft owns operating systems and applications, and Apple owns high-end hardware and entertainment and media devices. That may well change, though. So it's worthwhile to ask: As each company looks to encroach on the turf of the others, which one is best positioned for the future — and which is most likely to fall?

Although Apple is riding high now, it's the most vulnerable of the three. That's because its success is built on the singular vision and talent of one person — Steve Jobs.

In plenty of companies, if someone else took the place of an existing CEO, the company would do just about as well. That's not the case with Apple and Jobs, though — for all intents and purposes, he *is* Apple. Before he returned to Apple in 1996, the company was floundering. He killed money-losing projects like the Newton; oversaw the creation of a host of innovative products, including Mac OS X, the iPod, the iPhone and the iMac; and rejuvenated the company. *Harvard Business Review* last year named him the most valuable CEO in the world, because under his leadership, Apple's market value increased by approximately $150 billion, delivering a 3,188% industry-adjusted return.

That's both the good news and the bad news for Apple. As long as Jobs is on the job, great. But he won't be CEO forever, and there's no heir apparent who can match his vision. My guess is that after he leaves, Apple will experience a long, slow decline.

Apple will continue to thrive, but only as long as Steve Jobs remains CEO. That won't be forever, and there's no heir apparent.

Apple, far more than Microsoft or Google, has a business model somewhat akin to that of a Hollywood studio: It requires blockbuster hits in order to bring in big profits. When Jobs leaves, those hits will stop coming.

Of the three companies, Google is best positioned to thrive in the future. It has a near monopoly on Internet search, the core of the world economy's greatest growth engine. That gives it both an excellent base to expand upon, as well as a massive war chest it can depend on to fund new ventures. Although at times Google takes a scattershot approach to product development, it has heavily targeted high-growth areas as well, notably mobile devices. Because of that, it is well positioned to take advantage of the mobile device advertising boom that is likely to develop in the coming years. And although Google isn't likely to compete seriously against Microsoft in the operating systems and applications markets, it will gain enough revenue from its offerings to make it a player in those businesses.

Finally, there's Microsoft, which falls somewhere between Apple and Google. Unlike Apple, it doesn't need big hits in order to grow. With a stranglehold on operating systems and productivity applications, and with solid enterprise tools, it will grow steadily. Google won't be able to break its near monopoly.

The success of Windows 7 shows that the release of a new operating system still brings in plenty of revenue. Recently, Microsoft had a blowout quarter, increasing revenue by 14% over the year-earlier period, thanks to skyrocketing Windows 7 sales. And although Microsoft won't unseat Google as the Internet search leader, Bing shows that it can make plenty of money in that business.

So looking ahead, expect Google to thrive, Microsoft to stay the course, and Apple eventually to lose its Jobs-driven magic. ■

Preston Gralla *is a contributing editor for* Computerworld.com *and the author of more than 35 books, including* How the Internet Works *(Que, 2006).*

WIN SOME.
WIN SOME MORE.

ATLANTIC ■ ACM
1
2009
QWEST
ILEC IXC Billing,
SMB Data Value,
Enterprise Data Value,
Enterprise Voice Value
2009
PilotHouse
Award
Top Provider
Ethernet Services
Qwest Communications
awarded by
nemertes
RESEARCH

How did we follow up winning EIGHT ATLANTIC – ACM awards? By winning a Nemertes PilotHouse award for Best Ethernet Services. So, thanks. Because all of those awards were the result of feedback from you, our customers. And if you're not a customer yet, see what kind of award winning work Qwest can do for your business. **Learn more at qwestsolutions.com.**

Qwest
BUSINESS

Copyright © 2010 Qwest. All Rights Reserved.

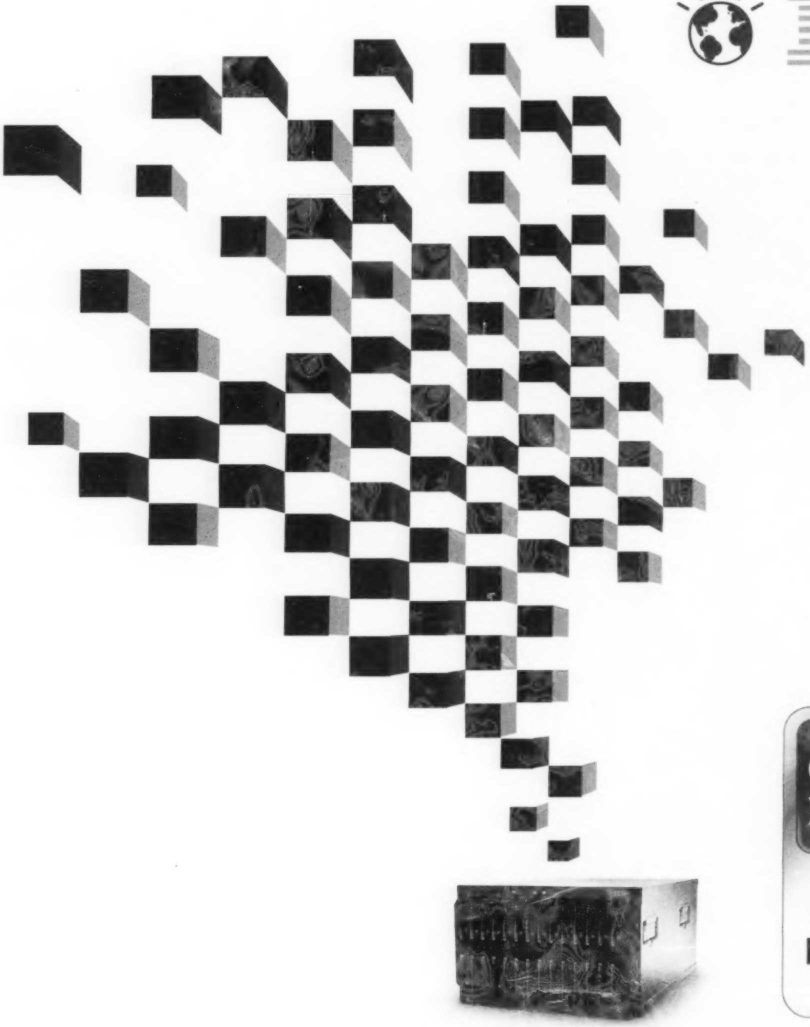
Smarter technology for a Smarter Planet:

Thinking outside the box depends on what's in the box.

The systemic inefficiencies in many server rooms today, in terms of both energy consumption and utilization, are becoming unsustainable. A recent study found that an estimated half of all businesses experience IT outages due to power and cooling issues.[1] Smarter tools like the IBM BladeCenter® HS22 can help. It's designed to give you greater efficiency at every level, from its highly efficient design and Intel® Xeon® Processor 5500 Series to its advanced management software like IBM Systems Director that actively monitors and limits power consumption. All of which can add up to 93% in energy savings over the previous generation of rack servers. Learn how you can see a return on your investment in as little as three months[2] at ibm.com/hs22

Systems, software and services for a smarter planet.

IBM®



intel

Xeon inside

Powerful.
Intelligent.

[1] Source: IDC Market Analysis #215870, Volume 1, December 2008, Worldwide Server Energy Expense 2008–2012 Forecast. [2] Return on investment and power savings calculation based on 11:1 consolidation ratio scenario of 166 Intel 1U 2 socket servers to 14 BladeCenter HS22 servers and savings in energy costs, software license fees and other operating costs. Actual costs and savings will vary depending on individual customer configurations and environment. For more information, visit www.ibm.com/smarterplanet/claims. IBM, the IBM logo, ibm.com, BladeCenter, Smarter Planet and the planet icon are trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the Web at www.ibm.com/legal/copytrade.shtml. Intel, the Intel logo, Xeon and Xeon Inside are trademarks or registered trademarks of Intel Corporation in the United States and other countries. © International Business Machines Corporation 2009. All rights reserved.